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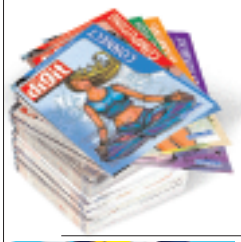

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Digit Reader Poll

This Month's Question — Vote at www.thinkdigit.com

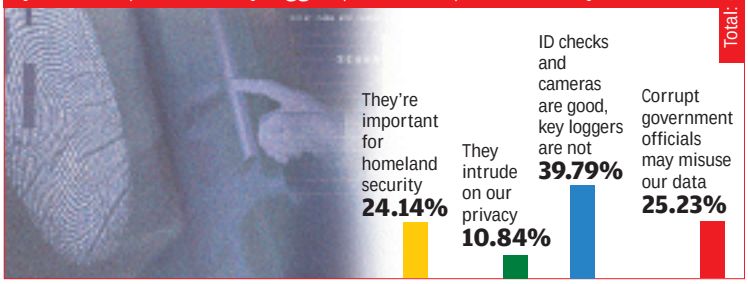
What are your views on electronic publications?

- ☐ You just can't beat the feel of paper
- ☐ I only read small articles online; it's still print for me
- ☐ I'd rather read the electronic version than not read at all
- ☐ Dump paper! Save the trees! Make *Digit* an e-mag!

Last Month's Question

What do you think of government-imposed security measures in cyber cafés, such as key loggers, ID checks, and security cameras?

Total: 6,116



taste technology at **www.thinkdigit.com**

FEATURED REVIEW FROM DIGIT FORUM (www.thinkdigit.com/forum)

This month we feature a member review from the forum here.

thinkdigit.com

My Review of Creative EP-630

11-10-2007, 10:23 PM

ratedrsuperstar
The Sexy Beast
Join Date: Feb 2006
Location: Mumbai
Posts: 378

I got Creative's in-hear noice-cancellation earphones from the IT Mall,Lamington Rd.,Mumbai for Rs 975.

1.Build Quality - it's strictly OK.it contains no button to change songs,that's a bit dissapointing.the cable length is just fine coz i'm kinda used to my 5300's cable which runs almost a normal person long.the've provided two extra sets of earbuds which is kinda cool.one pair has larger buds.

2.Bass - The bass in all the songs was very good,twice or even more better than SE.5300's has virtually no bass at all.the bass is low for the drums in the background.bass guitars sound good.Bass produced is both types deep and near.whereas W700i only has bass thumping closer to the earphone.

3.Sound Quality - Impressive stereo division although the central voice could have been a tad better.almost equal to both 5300 and W700i.
Depth in sound is very good;also xcellent reproduction of every beat and instrument used in the song.the vocalists breathing and guitar riffs are quite clear.
The whispers(central not stereo) in some songs are not that clear. W710i and 5300 sound very mono compared to EP-630.though depth and stereo division is good in 5300 too.W700i is only loud(less than ep-630) and the quality is largely due to it's in-ear type.no match for EP-630 though.

4.Comfort - not comapring 5300 here.comfortable to the ears but u do get the suction feeling when you open your mouth wide-enough.you sense putting on these when you talk which is not sensed otherwise.the buds look cheap but do a gr8 job.also the're very lite.

5.Noice Cancellation/isolation - not comapring 5300 here which doesn't have any sort of isolation.Xcellent noice cancellation even at the 3rd level of volume....

For more visit:
http://www.thinkdigit.com/forum/showthread.php?t=76210

Direct To Net

Paramount Pictures is experimenting with a radically new distribution model by releasing a full-length movie exclusively over the Internet, skipping movie halls. For a week starting 19 December, Jackass 2.5 was available for free viewing on the Web (**www.jackassmovie.com**).

SpeedWire

FireWire has gotten a makeover. The data transfer interface will see transfer rates ramped up from 800 Mbps to 3.2 Gbps. FireWire is the commercial name for IEEE 1394, and the new standard will be called S3200. This is faster than the eSATA standard, used for connecting hard drives, and also USB 2.0.

Enter

S. Somasegar
Corporate Vice President
Developer Division Microsoft

S. Somasegar, Corporate Vice President, Developer Division at Microsoft, was in Hyderabad at the Microsoft India Development Centre early December; we caught up with him for some geek speak about the new Visual Studio (2008), among other things

How have programming enthusiasts reacted to the Visual Studio Express Editions? What does the new Visual Studio hold for them?
The Visual Studio 2005 Express Editions were huge successes for us—we saw over 17 million downloads for them, and we expect a similar response for Visual Studio 2008. We realised that not everyone had access to a high-speed Internet connection—especially in developing countries—so we've even decreased the download size of each Express Edition to about 30-40 MB.

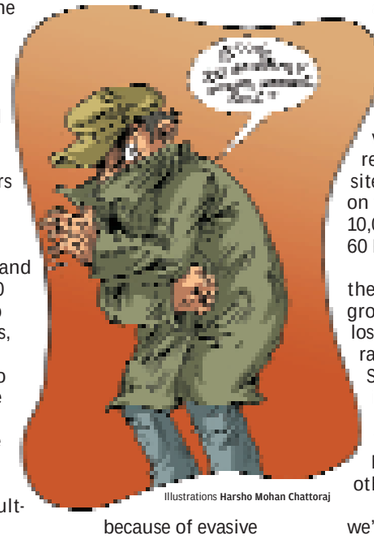
How newbie-friendly is VS 2008?
We've designed the software with one thing in mind: people with a basic understanding of programming should be able to start developing their software fifteen minutes after they start Visual Studio for the first time.

What do the Express Editions offer teams of enthusiasts in terms of collaboration?
Right now, nothing—the collaboration features are present in Visual Studio Team System right now, but that doesn't mean we won't see these features trickling down to the Express Editions in future releases. Distributed development is growing today, and it's going to be a core scenario to think about when we develop future editions. Teams should be able to share application spaces no matter where they are. The Express Editions do have better collaboration features than the previous versions, but still not as much as we'd like.

CRIMINOMICS

Crime Pays, And How!

A few weeks ago, the FBI launched operation Bot Roast II, and busted a ring of cyber-criminals, who were then charged with running a botnet (a network of compromised computers under the control of a central server) that spanned a million computers worldwide—and caused losses worth $20 million (Rs 80 crore). So how exactly do phishers, rootkit makers, and "botmasters" manage to make their money? The system is complicated and ingenious, and like any efficient criminal enterprise, it operates behind multiple, difficult-to-penetrate layers.



Illustrations **Harsho Mohan Chattoraj**

For sale in this underground "cybereconomy" are products that automate the creation of Trojans. Even support services are provided for a period of time, usually one year. Most of these Trojan-spewing rings work out of Germany and Eastern European countries, but their services are available globally. Botnets can be "rented" out for spamming or launching DoS attacks. In 2007's worst security attack is believed to have affected millions of computers—which came to be called the Storm botnet. Botnets, as mentioned, depend on a central command-and-control server. Locating it and shutting it down is extremely difficult because of evasive measures—like DNS masking—that the botmasters adopt.

Another hotbed of piracy, China is home to a virtual industry that rakes in millions of dollars for its players. A study by researchers at Peking University in Beijing and the University of Mannheim in Germany has shed some insights into how this economy works. Malicious code has high value, with the market price for packages of Trojan generator and evasion services ranging from tens to thousands of Chinese Yuan Renmimbi (RMB). (1 RMB is about Rs 5.) Selling user data to third parties means big money as well. The modus operandi is to attract visitors to sites by offering freebies like music and videos. The users' IPs are logged and sold to cyber-crooks. Upon the next visit, the visitors are redirected to malicious sites that install malware on the victims' machines. 10,000 IPs are sold for 40 to 60 RMB.

Gamers make up one of the most frequently-targeted groups. Password theft and loss of in-game credits is rampant: in fact, a batch of Seagate's hard disks sold in Taiwan was reported to have come installed with Trojans that stole MMORPG passwords and other account information.

The kind of criminals we're talking about use bulletin boards to communicate with each other and advertise services.

The good guys in this fight are the security and anti-virus firms, who have been slowly buckling under the onslaught of the attacks. For now, online crime seems to pay, and lot.

SOCIALLY OPEN

Facebook Opens Up

The social networking world has been seeing some not-insignificant upheavals of late. A little while ago, it was Google's attempt to break down the walled gardens of social networking sites by launching OpenSocial, a set of APIs for creating applications compatible across various such sites. And now, Facebook has jumped into the fray by allowing competitors to use its source code and create interoperable applications. For once, Google has been caught off guard.

Senior executives at Facebook have announced that the architecture for its development platform would be licensed to its competitors. This would mean that applications developed for Facebook could run on sites like Bebo, Hi5, or Orkut. So theoretically, it would be possible to "tattoo" your Bebo friends or to send a "hatching egg" to Friendster buddies, which is now only possible within Facebook. Bebo, a social network popular in the UK, has already redesigned its platform so that it can host features found only on Facebook. Last we checked, they had iLike—one of the most-used Facebook applications—on their front page, no less.

For Google with its OpenSocial, Facebook's move will be hard to counter. Facebook has cornered a large slice of the social networking pie, and has thousands of third-party developers around the world playing around with their API to make great, good, and downright silly applications (like throwing a cow at friends). These apps have large user bases, and developer support for them is strong. With an entirely new format and platform, this loyalty will be hard for Google to break, which it has to if it is to have any hope of catching the social networking bus.

OpenSocial is, for now, just a concept with lots of potential (those millions of Gmail accounts and Orkut users)—nothing concrete. It makes sense for other social networking sites to piggyback on Facebook and use its development platform. There is the danger that those sites could look start looking like clones of Facebook and lose their identity, but that's a chance they seem to be willing to take.

In related news, other sites—like LinkedIn and Friendster—have opened up their sites for developers. Both LinkedIn and Friendster are partners in Google's OpenSocial initiative, though there is speculation that they would also enable their platform to allow interoperability with Facebook.

For users the world over, all this would mean the breaking down of the walls around the individual sites, enabling them to seamlessly connect with friends and contacts across networks. But naturally, this means a trade-off between convenience and identity...

Security Watch

Patch IE, Update Flash Player

The Problem
Vulnerabilites have been reported in Adobe Flash Player as well as in Internet Explorer (6 and 7). The former is "Highly Critical" according to security firm Secunia, and the latter is worse—"Extremely Critical."

The IE vulnerabilities are four in number, and one of them is reportedly being actively exploited. Successful exploitation can mean your computer being used to execute arbitrary code (read: it can be taken over).

The Flash Player vulnerabili-ties are in versions prior to 9.0.115.0, and there happen to be as many as 10 of them. There are also multiple things that an attacker can now do as a result of the vulnerabilities, but being safe is only a matter of updating the software.

The Solution
If you have Flash Player 9.0.48.0 and earlier, you need to update to version 9.0.115.0; get it from **www.stage.adobe.com/go/getflash**. As regards the IE vulnerability, if you have XP SP2 with IE6, visit **http://tinyurl.com/2r63sb**. For XP SP2 with IE7, visit **http://tinyurl.com/2qdbqv**

HOT

Exercise And The Wii

The world's getting in on the get-off-yer-arse gaming wave—what could be better than losing weight while gaming? There's even Wii Fit to keep you, well, fit! Sure, you look like a total chump while you're at it, but people have done worse to get in shape.

NOT

It Doesn't Help!

According to a study by the British Medical Journal, gaming on the Wii doesn't expend enough energy to count as "real exercise", so stop fooling yourself, and instead of getting off yer arse and gaming, get off yer arse and go for a jog!

Do you use your cellphone to access the Web using GPRS/EDGE/WAP?
(You, too, can participate in this poll—at **www.thinkdigit.com**)

Opinion Poll

A Yes, I surf the Web on mobile daily
B Yes I use it only once-twice a week
C I don't, because I feel it is not secure (Bad experiences, if any)
D No; speeds are very slow. (Name the service provider)

Option B. I use it only twice a week, and that too for checking e-mails and offline PMs. The pathetic speeds are waste of time and on top of that we have to pay huge bills every month. Its my last resort on the Internet but its useful when I'm on vacation.

Gaurish Sharma
Jaipur

I'll definitely go with option D. I don't use the Mobile phone for surfing simply because the speeds are extremely slow and expen-sive too with my service provider—Vodafone.

Sukhdeep Singh Kohli
Jalandhar

I have a Symbian phone and using GPRS is such a breeze that I can get info of any-thing on the go—anywhere, anytime. In addition, I use it as modem with my PC too.

Rajesh Kumar Jaiswal
Jaipur

Option D. I did use GPRS when I had nokia N-Gage QD for the N-Gage Arena service to talk to other N-Gage users and download games. After I sold the N-Gage, I got GPRS deacti-vated—there was no point pay-ing so much for slow speeds.

Niranjan Naik
Pune

I'll go for option D. I don't surf the Web on my mobile since I heard that speeds aren't too good. I don't mind trying to surf on my mobile phone, though.

Prakash Jose Kokkatt
Muvattupuzha, Kerala

My choice is option D. I never even think of connecting my Mobile phone for surf-ing as the speed is as slow as a snail. In place of that, I'd love using my Laptop for surf-ing by connecting through AirTel Broadband.

Amit Anand
Jharkhand

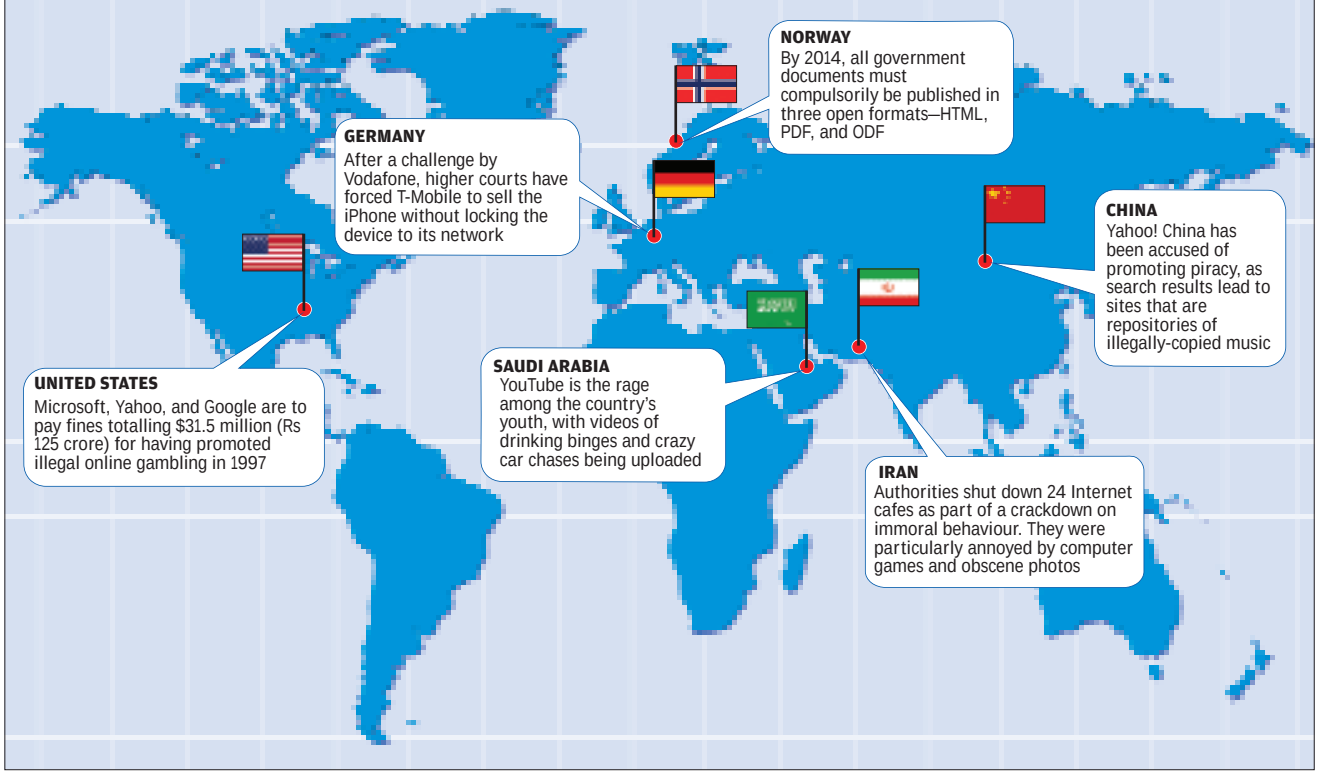
(You, too, can participate in this poll—at **www.thinkdigit.com**)

■ British drivers to be jailed for using mobiles while driving ■ Online version of OpenOffice.org available ■ Google Talk introduces in-chat translation

■ Firefox 3 beta 2 released with completely revamped download manager ■ Physiotherapists have been prescribing the Wii to patients ■

The Digital World

A Round-up Of Technology News From Across The Globe



GO GREEN—LITERALLY!

Bamboo Goodness

Apple, which today sells sleek aluminium iMacs, started out with the Apple 1 in a wooden box. Manufacturers soon shifted to synthetic materials for casings, which were cheaper but turned out to be harmful to the environment. E-waste is a growing problem the world over, and is exacerbated by the rapid changes in hardware, which necessitates frequent upgrades.

ASUStek Computer, which markets its products like notebooks and motherboards under the ASUS brand, has unveiled a laptop which, it hopes, will change the trend. The ASUS Eco Book, in the prototype stage, is encased in bamboo. Laminated strips cover all the surfaces of the prototype except for the keys, trackpad, and monitor.

For countries in South-East Asia, this environmentally-friendly laptop is a boon. Bamboo grows abundantly in this part of the world, and its rate of growth is way faster than that of a tree. With municipal landfills in developing countries chock-full of plastics and hazardous chemicals like the lead and arsenic used in computers, the demand for such green computers is likely to be huge. But these laptops are still not ready for prime time. The heat released from processors and monitors is a big concern, as are problems related to rough handling. These laptops are also not entirely green: the glues and laminates used for fortifying the bamboo might contain toxins.

Green computing has been a growing corporate trend. Manufacturers have been trying to make each and every component more eco-friendly—whether it's chemicals used in fabricating cases, or the materials used in chips. Dell, Lenovo, Apple, and HP are all concentrating on cutting power wastage, recycling components, and improving efficiency. A laptop made from bamboo fits neatly into the scheme of things.

HACK ATTACK

Apple? And Security?

The iPhone is undeniably hot. It's so hot that people have stood for days in long queues to buy it, and its manufacturers have had to prevent people from buying more than five handsets. Now, though, the rock-star popularity of the iPhone might work to Apple's disadvantage in terms of increased security attacks.

Apple's operating systems have always had a reputation for solid security. While Apple and its legions of fans tout these as features, more neutral observers ascribe the seemingly hacker-proof features to a miniscule market share (single digits). Hackers and cyber-crooks simply do not get enough returns on their efforts.

With the release of the iPhone, Apple has come from niche to mainstream. And it's not only Apple's competitors that have noticed the surging sales: since the iPhone runs a full-blown Mac OS X 10.5, the iPhone is wide open to malicious attacks. With millions of iPhones in the market, volumes have become enough to justify serious attacks that would

■ Apple rumour site ThinkSecret.com closes after settlement with Apple ■ Iran builds supercomputer on Opterons; maybe for nuclear programme ■

Photograph **Jyotbeet Singh**

Each month *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game! Entries accepted by the **20th** of this month.

Beat That!

Digit Caption

Oh no! I can't find my pet ant!

Last Month's Winner!

Nobody!
Sorry, you couldn't match up to our crack team of caption-ers

E-mail your caption with the subject "Beat That", and your postal address, to beatthat@thinkdigit.com and win **JavaScript, DOM Scriptinh and AJAX Projects** by Frank W. Zammetti

Published by WILEY-INDIA

WIKI-KILLER?

A Knol of Wisdom

yield significant returns in terms of user data stored on the phones. Already, hackers have breached the security features of the iPhone (they've unlocked it from the AT&T network), and have installed third-party applications. Though these hacks have been rendered ineffective by firmware upgrades, determined attacks on the basic platform would pose actual, serious threats that would need more than a simple upgrade. Attacks could involve the spread of mobile worms, which could render individual handsets useless, or the creation of a vast mobile botnet for sending out spam mails and SMSes. This scenario is now a distinct possibility because of the ubiquity of the iPhone.

2008 could very well see the release of security products targeted at Macs. Bad news for fanboys, but reassuring for corporates and businesses who are still leery of trusting valuable data to systems that do not have security features.

Of late, Google has been diversifying from its core search business, getting into areas like telecom and security. Now it's knowledge management and distribution à la Wikipedia that the Big G has set its eyes on.

Google has announced the launch of a new project called Knol, which aims to be a repository of the world's information. The blueprint for Knol is to allow experts to write definitive articles in their field of expertise. On the face of it, this sounds like Wikipedia. But there are some differences—each topic or page on the Knol, called "a knol" (a unit of knowledge) will be effectively owned by the author, who will not remain anonymous. There might be multiple knols on the same subject, and they may only be edited by the author or with the author's permission. This model borrows from Squidoo, a content management site that lets authors own their pages. Google will not act the editor in any way, and there will be nothing like an official knol for each topic. It aims only to provide the tools and the server space. Knol, currently in private beta, is open to users by invitation only.

Google will also host ads on each knol. The upside is that authors will get a significant share of the revenues (the actual percentage is being worked out). Industry watchers are, however, divided on the feasibility of another knowledge repository, and are also suspicious of Google's aims. It's a known fact that for many searches, the relevant Wikipedia entry comes at the top of the results page. When users click on that link, they go to a site where Google cannot put in any ads... This means a potential loss of millions of dollars in ad revenue. Again, there is the danger that driven by ad revenues, there might be a proliferation of knols on commercially-viable topics like microprocessor architecture or fashion design, and less about the Peace of Westphalia and Sumerian civilisation.

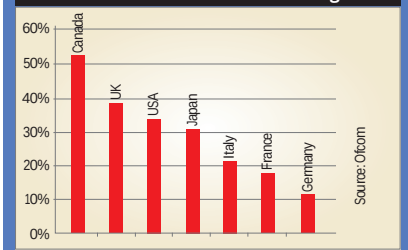
The most basic argument is, however, that since editing rights are locked, knols might contain biased viewpoints, or that they might contain outdated information. But there are certain arguments in favour of this new model. For one, since authors will no longer be anonymous, they might keep their knols objective and updated. Unlike Wikipedia, where each page can be modified by all and sundry and it is often difficult to separate the wheat from the chaff, Knol could result in pieces of authoritative work.

But then again, knols can be searched by search engines, and there are fears that Google might tweak its algorithms so knols feature at the top of search results. However,

■ Windows 7, the successor of Vista, to support touch features ■ Microsoft offers free copies of Vista and Office 2007 in exchange for user data. ■

STAT ATTACK

Percentage of adults with Internet access who use social networking sites



IBM has 73,000 employees in India, a 40% increase from 2006.

Mobile subscriptions in 2007 touch 3.3 billion—about 50% of the world's population

UK gamers spent £1.52 bn on games (Rs 12,300 crore) in 2007. 78 million game titles were sold; games accounted for 79% of all software

Cell phone users in China are the biggest users of text messaging services, with an average of 967 messages per person per year.

competition is, in general, good, and this proliferation of free content will only benefit the end user!

DATA RAYS

Playing With Photons

With each generation, processors are getting smaller and more powerful, which you know all too well; the current emphasis is on multiple cores, higher bus speeds, and larger caches. However, some basic principles of processor design have remained unchanged over the years. One of these is the mode of data transfer—wires have always been used for transferring data within a single core and also between cores.

There are problems, however. At the basic level, transfer of data means the flow of electrons, and this produces heat—which is a huge problem when it comes to modern processors. Electrons also can't travel faster than a certain velocity. The second factor has little bearing on quad-core systems, but when the number of cores becomes something like 12 (Intel and AMD already have plans for octa-core processors in two to three years), this architecture will be inadequate. Companies like IBM and Intel have been pouring millions of dollars into research on new processor fabrication designs and allied technologies; one result of these efforts is IBM's advances in transferring data at the core level using light.

IBM's researchers have improved upon the Mach-Zehnder electro-optic modulator, which is, at 200 micrometers long, more than 100 times smaller than similar devices. This modulator converts electric signals into light pulses. A laser beam is kept focused on the modulator, and when the electric signal carrying data falls on the modulator, it gets converted into light. This light beam falls on the other core's modulator, where an inverse process converts light to electronic signals. Since light travels faster than electrons in a wire, this means that data flow would be faster, resulting in the possibility of higher clock speeds. Since there is no heat production when light flows, this increased performance won't come with higher heat emissions, which is the bane of today's processors. Since cores are separated by 200 to 400 micrometers, this optical modulator seems possible in theory.

In practice, researchers say there is a lot of work to be done before chips using this technology reach store shelves. Size is a big factor to consider; it is very difficult to manufacture optical components at such micro-scales. Besides, the processor architecture needs to be changed if this is to be implemented.

DEEP WATERS

Standard Trouble

Microsoft has several times been accused of unfair business practices, and has been rapped both by US and European free trade regulators for throttling competition. All these years, the company has been able to shrug off the accusations owing to the strong performance of its products. However, with the lower-than-expected performance of Vista and Google breathing down its neck, it looks like they've been on a sticky wicket and are open to mending their ways...

Pursuant to this new "strategy," Microsoft recently announced it would sign a deal with the makers of open source server software Samba, which will enable Samba software (which allows Linux users to share file and print services on Windows machines) to run smoothly on Windows. This deal was the result of a 2004 EU ruling, backed by another one in September, which held the software manufacturer guilty of not sharing

Buzzword of the MONTH

Android

Speculation has been rife in tech circles about an upcoming "Gphone," from Google. They went an entirely different way though, releasing a software stack for mobile phones, called Android.

Android is a combination of operating system, user interface, and Java-based applications like e-mail client, SMS, browser, maps, contacts, database management, etc. Built on the Linux kernel 2.6, Android development is open source and platform-independent. Essentially, this means that software that is developed will run on a wide variety of handsets.

The Open Handset Alliance, a conglomeration of 34 companies—handset manufacturers (Motorola, LG), carriers (T-Mobile, Sprint), hardware companies (Intel, NVIDIA, Qualcomm), and software companies (eBay, Google)—is supporting the development of Android.

Google has released the Android SDK for developers, and has earmarked $10 million as prize money for innovative applications. Phones working on Android are expected to be shipped by the end of 2008.

■ Intel releases a fingertip-sized solid-state device that stores up to 16 GB ■ *World of Warcraft* gaming laptop introduced by Dell and Blizzard ■

W5H

Intel Moorestown

What's that?
The latest design architecture from Intel, Moorestown will be used in the Ultra Mobile PCs (UMPCs) and Mobile Internet Devices (MID) of the future.

Why are we talking about it?
The platform is touted as being a "system on a chip"; it will include a powerful 45nm processor core and the graphics and memory controllers on a single die. It consists of two parts: a flexible die design that can include dual-core processors if needed, and an I/O chip that provides connectivity to an inbuilt graphics accelerator. It can also support a DDR3 memory controller, PCI-Express, USB, SATA, and WiMAX.

Where is this headed?
The future of MIDs and UMPCs depends heavily on platforms that can handle computation-heavy tasks while being energy-efficient, since the trend is that of tasks traditionally carried out on a computer shifting to mobile devices.

Who would be interested?
Everyone from HTC (high-end phone designers and manufacturers) to Palm to Nokia. Those into operating systems—like Microsoft and Canonical (the developers of Ubuntu)—are also looking at this with great interest—they'd want a slice of the pie, of course.

How will this affect us??
This is speculation, but it does seem that everything you currently do on your computer will be possible on the mobile, from browsing HTML Web sites and watching HD movies to using GPS. Moreover, the devices will run at least 20 times longer than the current generation of mobile phones, according to Intel.

When can we start playing with these devices?
Not anytime soon. The launch date for the platform is expected to be around the middle of 2010.

details of protocols which would enable servers made by rivals to interoperate seamlessly with Windows. An appeals court ordered the company to remedy the situation by sharing the relevant data. This Microsoft delayed, and as a result, the market share of other companies shrunk to nearly zero, while sales of Microsoft servers (SQL Server, Exchange Server) surged. Samba was the only open source alternative in the market—and it survived.

Now with much-needed documentation, which it acquired for € 0,000 (Rs 5.7 lakh), Samba will be able to work on Windows without any glitches. The documentation will be kept confidential, though the source code for the applications that use these protocols would be released under the GPL.

In fact, Microsoft's seems to be abandoning its strategy of running roughshod over the competition, and seems—just seems—to be becoming more reasonable. The new IE8 has passed the Acid 2 test, which determines whether browsers adhere to the official W3C (World Wide Web Consortium) standards. This is good news for millions of Web developers, who have been forced to make different versions of the same Web site for IE and non-IE browsers. Besides, previous iterations of Internet Explorer had plenty of security holes, and one way of sweeping away the detritus would be by following accepted standards. This announcement was probably related to Opera filing a complaint against Microsoft accusing it of using non-standard protocols that force Web sites to follow suit, thus putting other browsers at a disadvantage.

Microsoft is sometimes called the Evil Empire: it is finally getting mellower? The jury is still pondering about this one...

MAKING A DIFFERENCE

Games For The Good

The number of games in the market that feature violence and gore, primarily to stand out in the crowd and attract fans, has been steadily increasing. Some are so disturbing that censors have fought to prevent their release: a case in point is Manhunt 2's troubles with British regulators. Efforts are on, though, to harness the potent visualisation and interactivity of computer games in other, more socially beneficial ways.

Games that simulate terrorist attacks and hostage crises have been long used by law enforcement agencies to train personnel. There's a problem with these games, though—they are so niche, they don't appeal to mainstream gamers. To remedy the situation, a prestigious New York-based Parsons The New School of Design has recently launched PETLab, comprising its faculty and students, to study how playing games might push players towards developing a social conscience. The lab will interact with game designers, educators, and other stakeholders to design games like ~Ayiti: The Cost of Life~, where players need to manage the day-to-day life of a family of five in Haiti. In a typical scenario, players might be expected to decide on whether to throw a bash or buy healthy food. Such games might also take elements from city simulation games like the ~SimCity~ series and teach players how to do things like reducing global warming and curbing wasteful food habits.

Backed by a $4,50,000 (Rs 1.8 crore) grant from the MacArthur foundation, PETLab is in collaboration with Games for Change, a non-profit that supports serious game designers, and think.MTV.com, MTV's socially-oriented Web site. It is also negotiating with Microsoft to determine whether the Xbox's game development tool could be used to create games in these genres.

The news that games can heal has been much in the news the past two years, and no-one now doubts that games can be used for more than entertainment. These new initiatives, though, don't sound entirely convincing, but we won't be downright pessimistic.

■ Toshiba launches batteries that last 10 years with five minutes of charging ■ The NYSE replaces UNIX on its servers with Linux ■

Lead Feature

Wars Of The Future

A World War IV soldier talks about his battlefield heroics

I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones.
— Albert Einstein

I remember that quote well; I'm one of the reasons the great Einstein was proved wrong. But then, even Einstein couldn't have imagined how fast technology would invade our lives.

The quote was very popular during the Cold War, and even aided government-funded propaganda. Those were the days when most of us lived in fear, with images of mushroom clouds in our nightmares. The rich and paranoid built underground bunkers and stocked them with a year's supply of food. The rest of us would dart furtive glimpses at the sky at even the hint of a siren. When the Cold War finally ended, World War III began...

The third instalment is actually the only real World War. The soldiers are called "terrorists," and the battlefield is your backyard. It continues today; though governments have fought back and tried to minimise such events, you probably still read about the odd incident halfway across the globe, if not right in your city. To be honest, I cannot complain much about it, because WWIII is what forced countries to go high-tech, get connected and start depending on technology—it's what lets me afford my luxurious life.

Who Am I?

I can't tell you my name for obvious reasons, but I can tell you that World War IV has begun, and I'm just one of thousands of soldiers fighting it. I've never held a real gun in my life, though I've fragged my fair share of enemies in my favourite FPS game. I'm certainly no James Bond either, and I have a fast-developing pot-belly—the kind beer-drinking couch potatoes proudly sport. I have a regular day job, which involves nothing more than sitting in front of a PC while I administer a small company's servers, so obviously, I bore easily. What I do have, however, is something my government is willing to pay a premium for, and it's the reason I have my moolah locked safely away in a Swiss bank vault. I drive a Maruti, but I can afford better. I live in an apartment—a true bachelor's pad—but no women ever visit. I guess they don't like the smell of rotting pizza, or my décor—if you can consider eight LCDs, four PCs and spaghetti tangles of wires "décor."

Chaitanya Surpur

I'm a geek of the highest order, and yes, I will inherit the Earth. I trudge through my work day, itching to get home and start the real fun. At night, I sit awake at my PCs, probing computers across the world looking for backdoors. Currently, I have a little over two million drones in my botnet, but still I can't seem to make it to the Top 50 Hackers list. I'm hoping that will change soon.

I have a meeting today, so I rush home, kick off my shoes and log on. I find my way to my IRC chat room and I see my contact is already there. He's been waiting impatiently playing the trivia game on the room's bot. I know this because a millisecond after I log in, he messages me and tells me. It's straight to business; he informs me that the Chinese have been attacking government sites with DDoS attacks and are generally being a pain. He's willing to pay me to return the favour. It's not really big money, but hey, it's still some fun... The icing on the cake is that I know I'm not going to be caught. A license to kill—people's inboxes, PCs and Net pipes, that is.

I give him my PayPal account details and just as I'm about to leave, he says, "Hang on. I just got new authorisation." I can smell the money, so I wait patiently. In 95 seconds he's back, telling me his "company" has authorised him to pay a significantly higher amount for information or a backdoor into the Chinese government servers. For a considerably lower bounty, I can hack their Web sites and redirect them to, well, pretty much anywhere I want. "Nice," I mutter to myself, "I've been eyeing the iPod Pico for some time now."

"There are signs that intelligence agencies around the world are constantly probing other governments' networks looking for strengths and weaknesses and developing new ways to gather intelligence"

Peter Sommers
London School of Economics

Just Business

Now big government hacks may pay a lot, but I can't stop my bread-and-butter business. I pop open a console window, create a batch file and send it over the botnet. Over two million PCs worldwide are connecting to popular sites in China, slowing them down and preventing legitimate access. I'm earning $50 per hour per site, and I can easily keep these sites down for six hours before they ban most of my botnet's IPs. Of course, I'm not going to stop there. In another IRC room, the list of connected users reads like an FBI's Most Wanted list. I announce that I have a paying job, and in under 10 minutes I've recruited 14 soldiers like myself. With a collective botnet strength of over 20 million, I can keep the attack on for days—though I'm sharing the spoils, I still get the lion's share.

The smell of money wafts into the air as I remember the other offer. I know just where to find the right people for the job. Unfortunately, these guys are way better than me, and expect a lot more money. Still, 10 per cent of a lot is way better than 100 per cent of a little. It will take a few days to co-ordinate the whole thing, but we have the luxury of time.

Playing Sniper

To begin with, one of my "friends" reports that the Chinese government site is easily hackable: it seems to have little or no security. It will be easy to deface the site, but it will be just as easy for the site admin to get it back to normal—unappealing. A few days later, another friend, who specialises in Trojans and backdoors for Linux server machines, happily announces that he has found his way through the first hack into the Web server, and can now connect to the Chinese railway system. A little more probing by our team reveals that it's quite possible to get into some major airports too.

News spreads fast in our little online world, especially when there's money involved. My specialty has always been the networking. No, not the WiMAX/LAN type; I'm talking (anti?) social networking—I just bring like-minded people together and unite them in a cause. I will help test the backdoors, but after a few days, because we can't risk waking the sleepy admins whose systems we're penetrating.

I report to my "company" contact and give him all the details we have—14 popular sites can be defaced, including China's most popular directory listing site and four government sites. Apart from that we can gain access to some A-grade city grids—air, rail and road services can be tampered with. "Excellent," he types, "give me a day to report this." He's back in less than 12 hours with his orders. Full-frontal assault, take no prisoners!

The Attack

D-day approaches. It's close to the Chinese New Year, which means loads of tourists and a strain on the infrastructure—perfect! By now my little army has grown to 13 people from four countries. We sit around nervously in our IRC chatroom and joke about what to call ourselves. "Thirteen Ghosts," someone suggests. It sticks—we like the idea of being able to get in and out like ghosts.

The attack begins the next day. While the geniuses start by gaining root access to the Web servers, I run a script to start a DDoS attack. I'm attacking some other government sites on the same IP masks as the compromised server. I'm just a smoke-screen, toying with useless servers to keep any alert admins busy. These admins should be able to thwart my "attack" in a little under two hours if they're efficient; six, even if they're not—ample time for us to plant our little e-bombs.

My measly 100 Mbps connection is hardly strained while DDoS-ing the four government sites, my friends have already gained access to the railway servers. In under 45 minutes, they have access to four major airports, and no-one's the wiser. We're won't crash any planes... we probably could, though.

The Motherlode

My IRC chat client goes berserk. I get 40 messages in under three seconds, causing my speakers to spit out the "bing" alert multiple times in a quite confused manner. "Hallelujah, Eureka, wheeeeeeeee," screams a friend. "What?" I ask. "Jackpot, baby, jackpot. We've hit the mother lode!" he types back in all caps—quite intentionally. Not only do the Thirteen Ghosts have access to the Rail Services and Airports, he's also managed to penetrate the traffic system, while his sister—who, incidentally, is amongst the top 50 hackers in the world—thinks she can get into the payment gateway of the country's largest government bank in about two hours. Oh well, if bank admins are dumb enough to use keyboard combinations for their passwords (azsxdc, 1p2o3i, etc.) they deserve to be robbed. She gained access with a simple brute-force password cracker, putting to full use the power of her Intel 80-core rig.

State Sponsorship

We have no doubt that the country's hackers will attempt to hit back at us or our countries. We're waiting. All of us have had substantial jumps in our personal Net worth; vive la PayPal!

A few days later, my contact returns. His superiors are thrilled. Besides our payments, he's also offering to send me an iPod Pico for a job well done. "No thanks," I type out, "I'd rather you not know where to send it." A few lols later, he leaves. Oh well, playtime's over. It's back to work... ■

editor@thinkdigit.com

Breaking News

January 1, 2013, Beijing

A hacker group that calls itself the Thirteen Ghosts broke into Government sites this morning. Six of the big cities had flights grounded for over six hours; rail systems are still not back online and traffic lights went haywire, causing a few hundred fender benders. The worst hit was the National Bank, which was first DDoSed, then hacked into. As a result, millions of dollars were donated to charities across the globe and detailed information about thousands of credit cards was stolen. This is the worst cyber-attack the world has ever witnessed, and a Government spokesperson puts the estimated damage at a little over $1 billion US. Luckily, no human casualties have yet been reported due to the mayhem that continues even now.

Real Headlines

Chinese tried to hack Australian Government PCs too
The Chinese allegedly tried to hack into highly classified government computer networks in Australia and New Zealand as part of a broader international operation to glean military secrets from Western nations.
Yahoo! News, September 12, 2007

Hacked: Email inboxes of Indian missions in US and China; NDA, DRDO officials too
Taking a dig at cyber security preparedness levels, a hacker, who claims to be based in Sweden, posted online this evening the passwords of 100 email accounts of embassies and government offices across the world, including 13 Indian accounts, containing classified information and correspondence... Indian Ambassadors to China, US, Sweden, Germany, Italy, Oman, Finland besides officials of the National Defence Academy (NDA) and Defence Research and Development Organisation (DRDO).
The Indian Express, August 31, 2007

World on the brink of global cyber warfare?
The latest annual security report from McAfee has singled out China as a particularly virulent source of international cyber espionage, with a number of Western nations said to have experienced significant episodes in the past year. However, there is evidence to suggest that a far more sinister online threat could be around the corner from nations other than China—state sponsored cyber attacks on vital infrastructure.
IT Wire, December 2, 2007

Apple iPod nano Video

December 2007

Michael Browne

We're such busy people at Digit—so busy, we forget to stop munching, and neglect our health. I needed a workout buddy, and fast—a PMP compact enough to pocket while jogging, plus good sound quality... Here's an account of my first month with the iPod nano 3G.

Day 1

Unpacked it... Satin black aluminium front, chromed steel rear reminiscent of the first generation nanos. It's much shorter than previous nanos, and slightly slimmer and lighter. Build quality is exemplary—typical Apple—and the contoured body is stylish. The nano 3G supports video playback on its 2-inch display, with a resolution of 320 x 240.

Day 2

The click-wheel feels solid; iTunes is still the same—music needs to be dragged from its interface to the nano if you're being selective, or you can sync the nano. Something new: the nano 3G shows up as a removable drive even without iTunes (although iTunes is needed for all multimedia files). After ejecting the nano, it still charges through USB. iTunes still won't detect FLAC files—sad.

Day 4

Apple's default earbuds leave much to be desired if you're discerning about quality. Swapping these with my EP630 proves a serious step-up. I used our Bose Intra-Ear earbuds and was even more impressed. The nano offers punchy bass that is low yet tight. Mids are superbly detailed and highs are well-represented—perfectly neutral-sounding.

Day 7

Paired this with my home setup—a tube amp coupled with my Sennheiser HD650 cans—and played a few favourite tracks (320 kbps). All the depth, clarity and detail was there; audiophiles who want portable source, consider this. I also tried the nano with the HD650s and no amp—there was an immediate loss in detail, though surprisingly, the result wasn't too bad, considering the output impedance of the nano is 40 ohms, while the HD650 is rated at 300!

Day 11

Copied a few photos and a video. The screen, while good enough for photos (crisp and bright), isn't all that great for movies. For one, the viewing angles aren't good. Besides, I like my videos on a bigger screen. Skip the nano 3G if you're looking at a video player.

Day 14

Attempted a firmware flash—the application is now part of the iTunes setup. It's quirky: the download crossed 100 per cent, but never completed. Reinstalling iTunes with my Net connection active sets the problem right. You can revert to the previous firmware at the click of a button.

Day 17

The nano allows me to download podcasts from the iTunes Store. Tried a few free audio and video podcasts. Even TV serials are available for purchase from iTunes, and this is where having a video player becomes a major plus. You can also download books from their library—this is where the true power of iTunes is realised: rich and varied multimedia content.

Day 23

Decided that video playback was not bad—just not much of an experience on such a tiny screen. Album Art while playing MP3s is more fun, courtesy the larger screen—pity it couldn't get larger.

Day 23

If you want to cart your entire collection with you, don't buy this— 4 / 8 GB is all you get. If you want a good movie player, look elsewhere. If you want something fancy, get the iPod Touch. If you want something really compact with amazing music quality, the nano 3G at Rs 6,500 (4 GB) or Rs 8,500 (8 GB) is the only way to go.

michael_browne@thinkdigit.com

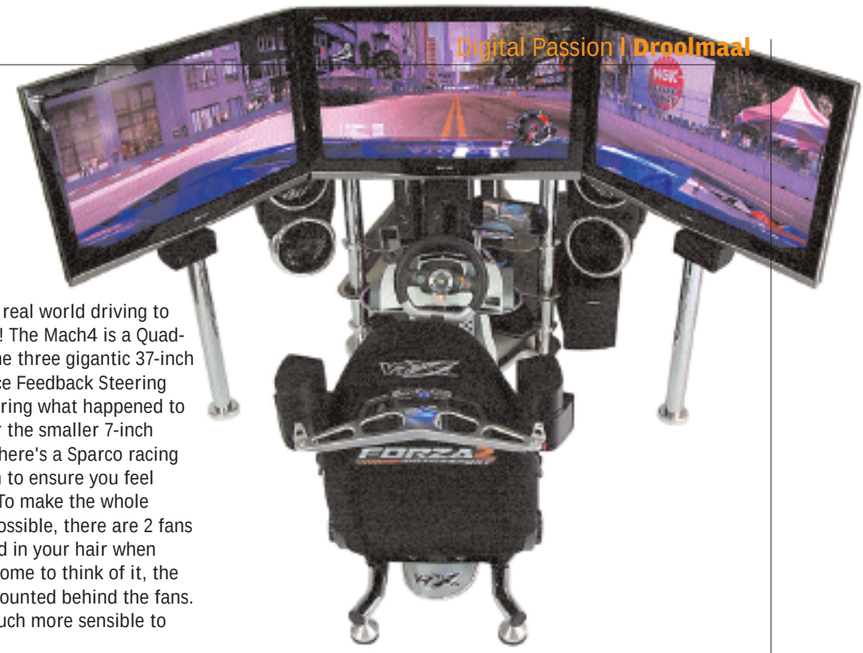
LG HT762TT

Home Theatre systems are generally all about quality, power and detail, but LG thinks design can't be ignored. Presenting the all new HT762TT - it's got 5 speakers and a subwoofer that total up to 700W of power that should be enough to blow the windows off the walls. While it may all be about aggressive power and chaos, its design is elegant and soothing and blends in well with your designer room. To take it beyond being just another fancy speaker set, they have put in VSM (Virtual Sound Matrix) which delivers a sensation of surround sound like you would get from 10 satellite speakers instead of 5. Plug in your USB devices to the system and you can playback MP3s, WMAs, DivX videos or even photos from your outings.

Axiotron ModBook

The iPhone isn't the only Apple gadget to get cloned by companies from our side of the world. There have been talks of ASUS apparently working alongside Apple on a "Mac-tablet" for some time now, but a company called Axiotron has already beaten them to it. Yes, there is, in fact, an Apple tablet that isn't made by Apple. The Modbook, as it's called, is based on the Macbook. A quick search on Google reveals 2 models of the Modbook - both between the price of $2,279 (Rs 94,000) and $2,479 (Rs 1,02,000). This isn't some handicapped version of the Macbook, it's the whole shebang - a Core 2 Duo processor, a 80 / 160 GB hard drive, a 13.3-inch touchscreen (obviously), a stylus powered by WACOM's Penabled technology, WiFi, and even a in-built GPS! All this runs on the OS X Tiger operating system. It's not like they were running out of space to stuff in more things either. They even give you the option to put in 4 GB of memory and up to 570 GB of disk

VRX Mach4



The VRX Mach4 brings the sensation of real world driving to your home, but without all the danger! The Mach4 is a Quad-Xbox360 chained together to power the three gigantic 37-inch Sharp 1080p screens. A Microsoft Force Feedback Steering wheel is used to steer. If you're wondering what happened to the fourth Xbox360, it's used to power the smaller 7-inch screen that is your rear-view mirror. There's a Sparco racing seat and a 1900-Watt vibration system to ensure you feel every bit of unevenness on the track. To make the whole experience of racing as authentic as possible, there are 2 fans that will give you the sensation of wind in your hair when you've broken your car's windshield. Come to think of it, the only thing missing is a fly dispenser mounted behind the fans. The price? £12,500 (Rs 10,50,000) - much more sensible to buy a real car, isn't it?

Droolmaal

The good stuff • Stuff to lust after • Stuff for the well-moneyed

Ultrasone Edition9

If there's anything more desirable than a set of ultra-high quality headphones, we don't really want to know. The Ultrasone limited headphones that cost $1,500 (Rs 63,000) are touted as the world's best, and many audiophiles would agree! The 'phones use 40mm Titanium plated Mylar drivers, and they can play frequencies from 8 to 35000 Hz - well beyond the human ear's capacity. Ultrasone's S-Logic technology gives a great sound stage performance to the Edition 9. To keep your head pampered, exotic Ethiopian sheep leather has been used on the earpads and headband.

Olive OPUS N°5

The VRX Mach4 brings the sensation of real world driving to your home, but without all the danger! The Mach4 is a Quad-Xbox360 chained together to power the three gigantic 37-inch Sharp 1080p screens. A Microsoft Force Feedback Steering wheel is used to steer. If you're wondering what happened to the fourth Xbox360, it's used to power the smaller 7-inch screen that is your rear-view mirror. There's a Sparco racing seat and a 1900-Watt vibration system to ensure you feel every bit of unevenness on the track. To make the whole experience of racing as authentic as possible, there are 2 fans that will give you the sensation of wind in your hair when you've broken your car's windshield. Come to think of it, the only thing missing is a fly dispenser mounted behind the fans. The price? £12,500 (Rs 10,50,000) - much more sensible to buy a real car, isn't it?

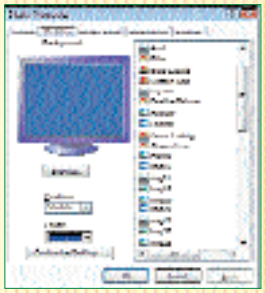
TAKE a CRACK

THIS MONTH'S CHALLENGE

Rearrange the elements of your Desktop Settings

How would you rearrange the elements of Desktop settings to show more of the list of available wallpapers?

Send in your solution with the subject "Take a Crack", and your postal address, to **takeacrack@thinkdigit.com**



LAST MONTH'S CHALLENGE

Create A Context Menu Item To E-Mail An IE Page

Solution To Last Month's Challenge

1. Start the Registry Editor: `Start > Run > type regedit > [Enter]`. Navigate to `HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer`. If you do not see a key called `MenuExt`, create one with that name.

2. Under `MenuExt`, create another key and call it `E-mail Page`. This is the text for the custom context menu item.

3. You also need to specify under what conditions this menu item is to be shown. For example, you may want to show it when you click on anchor elements, or for the main document and not for text boxes, and so on. This is specified by a value called Contexts. Add a DWORD value under `E-mail Page` and call it `Contexts`. Set the value for this to 1, meaning that it is shown for the default context menu. You can also use the values below to change the conditions for the menu:

Context	Value
Default	0x1
Images	0x2
Controls	0x4
Tables	0x8
Text selection	0x10
Anchor	0x20

4. Now specify the action to be performed on clicking this menu item. This is done by specifying the location of a script, which can be JavaScript or VBScript. Set the default value of your context menu key to the location of a HTML file; for example, `C:\Email.html`

5. Type the following code in Notepad and save the file as `C:\Email.html`:

```
<SCRIPT language=javascript defer>
// Declare variables
        var oExtArgs =
external.menuArguments;
        var sTitle =
oExtArgs.document.title;
        var sUrl =
oExtArgs.location.href;

        // Create IE object
        var oIE = new
ActiveXObject('InternetExplorer.Appl
ication');
        if(sTitle == '')(sTitle = 'No
Title');

        // Escape title and URL
        sTitle = escape(sTitle);
        sUrl = escape(sUrl);

        // Build mailto string
        var sMail = 'mailto:' +
'?subject=' + sTitle + '&body=' +
sTitle + ': ' + sUrl;

        // Load mailto string IE
        oIE.Navigate(sMail);
</SCRIPT>
```

You should now see the extra menu item in IE, and be able to e-mail the page using your favourite mail client. ■

The result: e-mail pages from within IE itself!

Win!

Take a Crack and win
Dreamweaver CS3
by Joseph Lowery
Published by
WILEY-INDIA

LAST MONTH'S WINNER

Gaurav Prasad
Chennai

Rules and Regulations

- Readers are requested to send in their answers by the 15th of the month of publication.
- Employees of Jasubhai Digital Media and their relatives are not permitted to participate in this contest.
- Readers are encouraged to send their replies by e-mail. Jasubhai Digital Media will not entertain any unsolicited communication.
- Jasubhai Digital Media is not responsible for any damage to your system that may be caused while you are trying to solve the problem.

A Game of Chess

In the pages that follow, you will find products that can be considered the cream of the crop, battling it out for supremacy, and more importantly, the coveted Digit Zero1 Award

The technology market is perhaps the goriest of them all. With companies fighting tooth and nail to catch your eye and releasing products on a monthly basis, one thing's for sure—life's never boring. Most of us don't even realise the amount of research and development and planning that goes into releasing a new model of even a humble flash drive, let alone the mammoth task of developing and launching a new processor architecture, graphics card, motherboard, monitor, hard drive, etc.

Someone here at *Digit* likened it to a battle of chess grandmasters—there's the opening move (announcing the release dates of the product); the countering of every attack (keeping an eye on what your competition is doing); carefully planning your future moves even before your opponent makes his (market research, etc.); and finally, as soon as you can, move in for the kill... and checkmate!

Products are released with a full frontal attack, moving like a castle; intelligently sidestepping diagonally like a bishop; castling to protect their kings when threatened; all in the attempt to stymie the opponent and win the battle. All of this only lasts for few months, and then the battle is reset as easily as a chessboard can be, and a new generation of products battle it out all over again.

We'd like to think of our annual Zero1 Awards as the culmination of the year's tournaments, and the felicitation of the winners as the crowning of a grandmaster—champion of the world! Like in chess, you shouldn't make the mistake of thinking of the products we've tested in terms of winners and losers. Whether the reigning champions prevail, or lose out to newer releases, you can bet your life that companies will take the necessary measures to come back and win whatever they may have lost this year.

For example, our processor segment sees Intel outplay AMD, winning the game in very few moves indeed. Their Core architecture will remain their cash cow for some time on, and the Penryn only promises more of the same. AMD, meanwhile, countered with their true-quad cores, and are defending pretty well. The graphics card segment saw a similar story with NVIDIA and ATI (AMD again), with NVIDIA winning this round of the tournament.

In this, the first of our two part Zero1 coverage, we've divided products into 16 categories, read on to find out which products were the grandmasters of 2007. Keep a look out next month as well, where we'll cover the felicitation ceremony and announce a few more awards.

Jiten Gandhi

CELL PHONES

Right now, as much as 18 per cent of the population owns at least one phone. The emphasis is on multimedia phones rather than budget phones; the first generation of cell phone adopters wants that extra. With leading manufacturers like Nokia, Sony Ericsson, Motorola, and Samsung introducing a lot of models in the "multimedia device" category, the time to be stuck with "just a phone" seems to have come to an end.

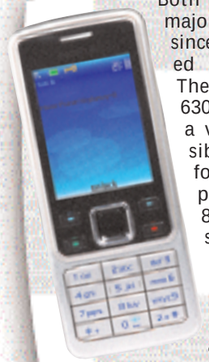
Powerful cameras, lots of Flash storage, great PMP abilities, and inbuilt Wi-Fi and GPS make for some truly amazing convergence. Allied technologies have improved as well, like the displays—nothing short of astounding.

MULTIMEDIA PHONES BETWEEN RS 14,001 AND RS 20,000

The Reigning Champions

Nokia 6300; Samsung SGH-E840

Both our champions have seen major price drops since we tested them. The Nokia 6300 makes a very sensible buy for the price (Rs 8,400, street price). The SGH-E840 (Rs 9,600) has a beautiful screen, and is one gorgeous phone—a beautiful slider mechanism, the slickest we've seen. If you happen to have a copy of our August 2007 issue, you'll see the price difference between then and now...



Nokia 6300

Samsung SGH-E840

The Contenders

Sony Ericsson K790i; Nokia N73

A lot has changed since August 2007 when we conducted our shootout and adjudicated in joint favour of the Nokia 6300 and Samsung SGH-E840. For one, the Gold winner in our Up to Rs 20,000 multimedia category has seen a serious price drop. The excellent K790i has fallen to Rs 12,800 from Rs 16,222. An excellent screen, amazing music quality, and a brilliant 3.2 MP camera make the K790i an absolutely superb buy. The Nokia N73 is another worthy candidate, priced at Rs 12,750: it has a superb screen (240 x 320, 2.4 inches), great camera on par with the K790i, and all the flexibility that Symbian S60 provides. The N73ME won Gold as well; although we didn't test the non-music edition, the features remain the same apart from the dedicated music button.

The Award

Sony Ericsson K790i; Nokia N73

We find our two new contenders battling so hard for the crown that in the end, we've decided to award a joint Zero1 award to Sony Ericsson's K790i and Nokia's N73. Both offer tremendous value for money now after serious price cuts—a very good entry point to the world of multimedia phones, and something you won't tire of very soon.

Nokia N73

Sony Erricson K790i

MULTIMEDIA PHONES ABOVE RS 20,000

The Reigning Champion

Nokia N73 Music Edition

The Nokia N73 Music Edition was one fabulous 20,000-rupee-plus phone—till it became cheaper! It's even better value for money now, but there are higher-end multimedia phones available that have fallen into the price void it's created.

The Contenders

Nokia N95; Nokia N95 8 GB; Sony Ericsson K850i

After a serious price drop, the N95 (street price Rs 24,550) is still around and going strong. The only issue we had with this device was poor battery life. The N95 8GB remedies this with a new 1200 mAh battery, a bigger screen (2.8-inch vs. 2.6-inch). In fact, the only reason the N95 lost out was due to its astronomical pricing at the time of our comparison test (Rs 40,249). It's even got GPS and Wi-Fi—total connectivity. The new Sony Ericsson K850i is another beauty—a very feature-rich phone with a great camera.

Sony Ericsson K850i

The Award

Nokia N95

Nokia's N95 emerges the Zero1 winner. It was overshadowed by its cheaper-by-half sibling—the N73ME—simply because of the price and the latter's stellar battery life. With great signal quality, a 3.5mm jack, and GPS and Wi-Fi, the N95 is a fully-loaded pocket computer, which is exactly the way Nokia advertises it. If you've got Rs 25,000 to blow on a multimedia phone, it'd be a shame if you spent your money anywhere else.

BUSINESS PHONES

The Reigning Champion

Nokia E50; Nokia E90 Communicator; Sony Ericsson P990i

Nokia's E50, E90 Communicator, and the Sony Ericsson P990i were our Gold winners—three very deserving candidates in three very different price brackets. The Nokia E50 is compact, Symbian based (read feature-rich), and offers an affordable entry point to the Business series. The SE P990i offers a touchscreen, QWERTY and number keypad, Wi-Fi, and a good 2.0 megapixel camera, apart from document creation and editing software. Very feature-rich, the only minus being that it's heavy. And when we think of the businessperson, we think Communicator.

Sony Ericsson P990i

Nokia E50

The Contender

Nokia E51

Nokia's E51 upsets the happy position of the E50. It's got everything—a 16 million colour display, good battery life, a strong metal body, sleek lines, Wi-Fi, and best of all, a great keypad. We haven't really seen anything more from other vendors, and certainly nothing threatening in the way of a high-end PDA.

The Award

Nokia's E90 Communicator—our Zero1 winner for this, the Business Phones category—retains its hold on the lofty high-end PDA market. With an excellent QWERTY and regular keypad and a host of features, it is still the most-sought-after businessperson's companion in the high-end PDA category. At Rs 34,500, the E90 is one desirable phone!

Nokia's E51 becomes the new entry-level business phone of choice. All the features of its predecessor and a bagful more—a better screen, keypad, and much better build. Highly recommend for the price (Rs 12,000 approximate street price).

DIGITAL CAMERAS

Digital Cameras have helped the layman take up photography; they've made the learning curve a lot less steep. Their price and availability have made them very popular, and it's only getting better. Decent entry-level cameras can be had for as little Rs 7,000 to 8,000. The dropping prices of memory cards has also helped.

Most of the technology has stayed more or less the same as compared to the previous generation; features like larger number of focus points in a scene and image stabilisation have become standard.

"Ultrazoom" or "pseudo-SLR" cameras refer to those that resembled D-SLRs in shape while being much smaller and cheaper. The zoom levels and the megapixel ratings have been the most prominent changes here. A few models launched by a few brands (Sony and Canon, for example) now fill the gap between point-and-shoot and Ultrazoom models.

POINT-AND-SHOOT CAMERAS

The Reigning Champion
Canon PowerShot A570 IS

The winner from our last digital camera test—back in October 2007—was the Canon PowerShot A570 IS—a brilliant camera with a whole load of features and a highly competitive MRP of Rs 17, 500. The market price now is much lower, and the camera seems to be available in the grey market at the Rs 9,000 to 10,000 mark. It has a 7.1 MP sensor with 4x optical zoom. One highlight was lovely, natural colours, not unlike most of the Canons in the category.

The Contender
Canon PowerShot A650 IS

Canon has kept updating their cameras; the result of this is the A650 IS—an updated A640—which lacked image stabilisation. The A650 IS is a 12.1 megapixel camera (really a lot!) and gets into D-SLR territory in terms of resolution. In addition, the A710 IS has been replaced by the new A720 IS. The upgrades here aren't as substantial as with the A650 IS.

The Award
Canon PowerShot A650 IS

The 12.1MP sensor apart, the optical zoom has been bumped all the way up to 6X from 4X—yet another great upgrade. This one as good as the A720 and the A710 in terms of zoom, but has a considerably higher megapixel rating. The $400 price means around Rs 16,000. The market price will be lower than that, and the grey market price even lower. If

you're able to get the A650 IS for under Rs 12,000, it's a must-buy!

ULTRAZOOM CAMERAS

The Reigning Champion
Sony Cyber-shot DSC-H7

We tested the Canon S3 IS in 2006, and we got to try the Sony DSC-H7 in our most recent comparison test. The latter is the Reigning Champion.

The Contenders
Canon PowerShot S5 IS; Sony DSC-H9; Olympus SP-550UZ

The Canon S5 IS is known for its realistic colours and overall good quality. The Olympus SP-550UZ has the largest optical zoom of the lot—18x—but is a 7MP camera as compared to the rest, which are at around 8MP. The Sony DSC-H9 is very similar to the DSC-H7, with the exact same megapixel rating and optical zoom, but it has a larger, 3-inch screen.

The sensor and the image resolution you get are very similar to those of point-and-shoot cameras. Until last year, 12x of optical zoom was the norm for all manufacturers in this range. This year, however, Sony upped it a notch to 15x with the DSC-H7 and H9.

The Award
Canon PowerShot S5 IS

The Zero1 in this category goes to the Canon PowerShot S5 IS, a brilliant camera for its price—in the grey market, it's around Rs 15,000. It's indeed a bit costlier than a typical point-and-shoot, but you get something like a point-and-shoot with features you'd find on D-SLRs. It's a great first-step camera for anyone who would like to start using a D-SLR but needs something affordable to train with.

GRAPHICS CARDS

This was clearly the year of the graphics card. 2007 saw the penetration of DX10 graphics cards into just about every segment, and the partial phasing out of DX9 cards. Though DX10 games are lagging behind the hardware, with poor optimisation and such, the desire to be future-proof is the driving force behind what's happening. We also saw the increased importance of HTPCs and gaming PCs last year; such PCs depend heavily on the graphics card, and this is another reason to have seen a large crop of DX10 cards coming into the market.

HIGH-END GRAPHICS CARDS

The Reigning Champion
Galaxy 8800 Ultra

The Galaxy 8800 Ultra, based on the NVIDIA GeForce 8800 Ultra—currently the fastest GPU in the world—was easily the fastest-performing graphics card in our tests. With 768 MB of GDDR3 memory, this card just chomps up any game! Even at 8x Antialiasing and Anisotropic Filtering, the Galaxy didn't break the proverbial sweat. It comes with a stock NVIDIA heatsink that appears to do the job well. It makes for an ideal companion for a powerful gaming rig. And it goes without saying that this card will easily power any HTPC (an overkill if there ever was one!), although its audience is the hardcore gamer who will spend the Rs 30,000 it commands.

The Contender
XFX 8800GTS Alpha Dog Edition

Another brute of a card, the new 65nm process enables NVIDIA to bump up clock speeds on the same formidable 128 shader units, so much so that the 8800GTS comes close to the 8800GTX, its elder brother.

The Award
Galaxy 8800 Ultra

The Galaxy 8800 Ultra is the biggest, the fastest, and the costliest card out there. If you have the dough (Rs 60,000 odd) then SLI two of these... and tell us how Crysis looks!

MID-RANGE GRAPHICS CARDS

The Reigning Champion
ASUS EN8600GT

The mid-range category is the bread and butter for vendors, characterised by high sales and good profit margins. This is also where the most buying happens. The ASUS EN8600GT outperformed all the other 8600GT cards in our tests, and even demolished the 8600GTS cards. This overclocked marvel (540 stock vs. 625 EN8600GT) stayed cool throughout the tests. It is a good buy for the mid-range segment for a decent gaming machine, and a superb powerhouse for any HTPC, or someone who wants a combination of both.

The Contenders
ATI Radeon HD3850

ATI's RV670, better known as the Radeon HD3850, enters the fray: a severely cut-down (as far as memory bandwidth goes) version of the older and much hotter HD2900 pro. Built around a new 55nm process, the HD3850 still features the 320 shader units and even more processing power due to higher clocks. The best part is that at Rs 12,000 or thereabouts, the HD3850 makes one fantastic option for a decent mid-range card.

The Award
ASUS EN8600GT

While we're yet to see the new mid-range series from NVIDIA and ATI, the whole point

of a mid-range buy is the price point of Rs 8,000, beyond which we don't see anyone other than the discerning gamer spending. For its mix of price, performance, and low power consumption, the ASUS EN8600GT still hasn't got a worthy competitor to displace it of its lofty perch as our Zero1 award winner.

HARD DRIVES

In the past year, nothing significant has happened in this category in terms of the technology; the trend of prices dropping did continue, though. Then, IDE drives went out, to be completely replaced by the faster SATA interface. Perpendicular recording, introduced last year, is becoming mainstream—320 GB drives built upon this technology are priced really well. We expect things to stay the way they are for at least a couple of years, before Flash-based hard drives start the process of phasing out magnetic storage media-but that remains to be seen. Also, some drives that cater to AV specialists have been unveiled along with so-called "green" hard drives that claim to consume lower power-we shall see a lot of this next year.

Things were similar with external drives. The interface has remained the same—USB, and FireWire, while capacities have increased. In this case as well, drives based on perpendicular recording are increasingly being used, especially in the backup category. Micro hard drive based external drives were nowhere to be seen, and this indicates the waning interest in that category, which was last featured in 2006. In the coming year, we expect to see drives featuring the new eSATA interface sporting 3 Gbps speeds and thus, great performance. Networking is in vogue, we therefore expect that more and more of the drives will feature an interface such as RJ-45 or even Wi-Fi, because such drives don't need a PC to be able to serve as a file server.

INTERNAL SATA

The Reigning Champion

Western Digital Caviar SE16 WD3200AAKS

This 7200 rpm drive hits the sweet spot for internal hard drives, with a generous capacity of 320 GB and excellent performance, along with a superb paise per MB of just 1.47. Sporting the SATA II interface, it has a large 16 MB buffer—great especially when you're transferring large files of loading large game levels.

The Contender

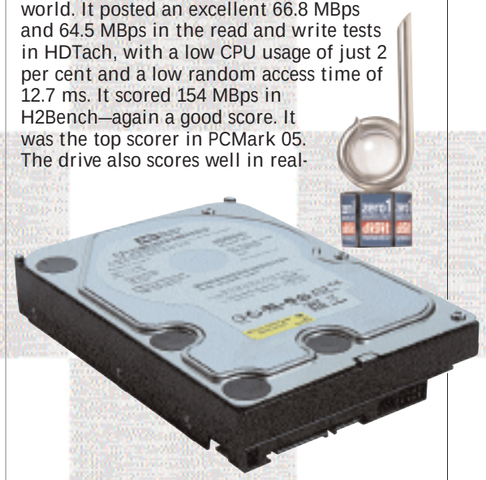
Western Digital Caviar SE16 WD5000AAKS

This drive differs from the Reigning Champion only in terms of capacity; the performance is very similar, but it loses out on the price front: it costs Rs 7,500, placing it a little off the sweet spot.

The Award

Western Digital Caviar SE16 WD3200AAKS

The Western Digital Caviar SE16 WD3200AAKS excelled in all our tests, synthetic and real-world. It posted an excellent 66.8 MBps and 64.5 MBps in the read and write tests in HDTach, with a low CPU usage of just 2 per cent and a low random access time of 12.7 ms. It scored 154 MBps in H2Bench—again a good score. It was the top scorer in PCMark 05. The drive also scores well in real-world file transfers—less than a minute to copy a 4 GB file to and from the drive, while transferring it between partitions on the drive took just over 2.5 minutes. Priced at a really affordable Rs 4,500, this drive gets the Zero1 award in this category.



BACKUP EXTERNAL HARD DRIVES

The Reigning Champion

Western Digital My Book Essential

The Western Digital My Book Essential looks like a reference book, and sports a rugged build. This 500 GB drive has 16 MB of buffer. The design allows you to stack drives one on top of the other to increase capacity. It weighs 1.32 kg, meaning it's easy to carry around.

The Contender

Maxtor OneTouch III Turbo Edition

This 1 TB drive is built very well, and has a backup button that works in conjunction with the excellent EMC Retrospect software (bundled). The drive supports the speedy FireWire 800 interface in addition to USB 2.0. This was the fastest performer in this category, but is priced at Rs 36,200—which goes against it if you're looking for a winner.

The Award

Western Digital My Book Essential

Our Zero1 award winner in this category, the Western Digital My Book Essential top-scored in almost every test we threw at it. The average read speed is 34.2 MBps, while write speed is 23.9 MBps. It took just 40 seconds to write a 1 GB file to the drive, while reading it from the drive took an amazingly low 35 seconds. Copying 1 GB of assorted data to and fro takes just 1.5 minutes, which means it's one of the fastest drives. It comes with a USB 2.0 data cable as well as a power adapter. The bundled WD Diagnostics utility helps you troubleshoot any problems you might encounter. The price is just Rs 8,300.

PORTABLE EXTERNAL HARD DRIVES

The Reigning Champion

Western Digital Passport Portable (Black)

This drive is just a little bigger than a passport, and it is quite light at 231 grams. The body is of a strong black polymer with a piano black finish on the top and a rubberised finish at the bottom that provides the grip needed to prevent sliding off a surface. The 8 MB buffer is sufficient for sustained data transfers over USB 2.0.

The Contender

Iomega Portable Hard Drive

This 80 GB Iomega drive is very sleek, and was the lightest drive in this category. The casing has an extra power socket for when the drive is unable to draw enough from the USB connector. Though it is just a 4200 rpm drive, we found the performance commendable—almost as good as that of the reigning champion. It comes with EMC Retrospect to take care of your backup needs. The pricing is very sensible.

The Award

Western Digital Passport Portable (Black)

This drive has a read speed of 33 MBps, while the write speed is 23 MB/s. Writing a 1 GB file to the drive takes just 42 seconds, while reading it back is even faster at 36 seconds; This makes it a top scorer in this category, but in addition, its performance is comparable even to that of some of the faster backup external drives. WD provides a USB 2.0 cable. The bundled WD Sync software is good for all kinds of backup, meaning you won't have to spend extra on a third-party application. The price is good, too—Rs 6,500.

INKJET MFDS

Inkjet MFDs are very popular today, especially because of ever-falling prices. Nothing of significance happened in this field in 2007, but certain technological advancements such as faster printing technology using a head that does not need to move are in the pipeline, and are expected to go mainstream this year.

HOME INKJET MFDS

The Reigning Champion

Canon PIXMA MP160

An entry-level inkjet MFD based on 4-cartridge thermal inkjet printing technology. Having four separate cartridges is advantageous because if one of the cartridges gets drained, you can replace just that, as opposed to having to replace a combined colour cartridge. This MFD has a 7-segment LCD display that shows the selected number of copies to be printed.

The Contender

HP Photosmart C3188 All-in-One

An inkjet photo MFD based on 2-cartridge thermal inkjet printing technology, this one has an input tray capacity of 100 sheets—good for most SoHo purposes. The scanner's optical resolution is 1200 x 2400 dpi—the best in the category. Being a proper photo MFD, it has buttons to Reprint photos as well as proof sheets. Interestingly, it features memory card slots but not PictBridge. Photo print quality was excellent, second only to that of the Reigning Champion. This MFD was neck-and-neck with the champion—even the price is the same—but it lost out a little on performance.

The Award

Canon PIXMA MP160

The Canon PIXMA MP160 prints really fast—it printed the normal-quality text document in 9.3 seconds flat. It was also the fastest at printing our combi-document at Normal quality. It printed exceptionally well even at the highest speeds. The edges of the text were crisp, and the ink did not blot the paper even at high quality. The copy quality was the best in the category, and this MFD scored the highest even in our scanner test. Though priced a little on the higher side, at Rs 5,999, its exceptionally good performance fetches the Canon PIXMA MP160 the Zero1 award in this category.

OFFICE INKJET MFDS

The Reigning Champion

HP Photosmart C4188 All-in-One

Good looks, good prints, and great build quality—good enough to bear the rigours of office use. Based on thermal inkjet printing technology, it uses two cartridges. This photo printer has memory slots for SD, MS, MS Pro, SM, MMC, and xD, and it also supports PictBridge. There is also a Reprint function and a special side tray to store 4 x 6 photo papers. The C4188 has the Photo Fix function, which lets you apply effects to images read from memory cards so you can improve print quality.

The Contenders

Canon PIXMA MP460

Now this MFD exhibited the best performance in every department. It was clearly the fastest in printing, and without a doubt had the best photo print quality despite the fast speeds. It produced clear prints in true-to-original colours. It was fast at the text and combi-documents as well. The copy quality was so good, it was hard for us to distinguish between the original and its copy! A swivel colour LCD lets you not only view the photo from a memory card or camera connected to the PictBridge port, but also crop and resize it. However, this MFD costs almost 2000 rupees more than the Reigning Champion.

The Award

HP Photosmart C4188 All-in-One

The HP Photosmart C4188 All-in-One (Rs 7,999) featured high-resolution scanning at 1200 x 2400 dpi, which means it picks up even text in fine print from hardcopies. It was the fastest in black text printing at Normal quality. It was also a clear winner in the photo prints, reproducing natural colours. This is a clear winner of a Zero1 award.

LASER MFDS

Laser MFDs are good for any business, but especially for a growing one. They are best used when the workload involves high-volume, high-speed printing, and one that needs to be very cost-effective. They are more expensive than inkjets, but the extra cash is quickly recovered as you print more and more, owing to the low printing cost.

BUDGET (UP TO RS 16,000)

The Reigning Champion

Brother DCP-7010

This is a compact MFD with a footprint of just 43.2 x 39.5 cm2 (which is quite small). The DCP-7010 is a mono laser printer, scanner, and copier. It has a hardware print resolution of 2400 x 600 dpi, which is quite high for an entry-level product. Scanner resolution is 600 x 2400 at 24-bit resolution, and it supports a maximum paper size of A4. Along with the USB interface, there is also the older parallel interface for working with legacy devices.

The Contender

HP LaserJet M1005 MFP

This entry-level machine from HP rivals the DCP-7010 in all respects, and surpasses it in some. The performance is traditional HP: good speeds and excellent print quality. The scanner works reliably and has support for resolutions for all purposes. At Rs 12,999, it is priced at a premium, but given the availability of consumables and other value-added services, it's well worth the money.

The Award

Brother DCP-7010

The Brother DCP-7010 wins our Zero1 award. Print quality was average for text in Draft mode, but improved a lot in Best mode. The scanner reproduced colours fairly well; in fact, it's good enough for photographs. The bundled MFL-Pro suite—a control centre to take care of jobs such as scanning, faxing, and more—is good, and also bundled is PaperPort 9.0SE (OCR software). The DCP-7010 is decently priced (Rs 11,150); the toner cartridge costs Rs 2,150, meaning the cost per print is 86 paise. We'd still recommend this MFD because of portability, speed, and overall performance.

SOHO (RS 16,001—RS 30,000)

The Reigning Champion

Brother MFC-7420

With a rather small footprint of just 43.2 x 39.5 cm2, it's easy to set up this device just about anywhere. It has fax functionality and an ADF tray that holds 35 sheets. It is built fairly well, except the flaps don't seem sturdy. The input tray has a capacity of 250, sufficient for most SoHos, while the output tray holds 100 sheets—again, not bad. The fax has a memory of 500 pages, so you'll probably never miss a fax. This unit features the USB as well as the parallel port interfaces, and although it does not come with an Ethernet port, you have the option of separately purchasing an Ethernet Print Server.

The Contenders

Canon imageCLASS MF4122

The MF4122 has a small footprint and is built very well. It has an input tray capacity of 250 sheets—pretty good. There is also a multipurpose tray that holds one sheet. It is amazing that even though it doesn't cost too much, it features duplex printing. A Toner Gauge button lets you monitor the amount of toner remaining. Warm-up time was just 7.4 seconds, the fastest we've ever recorded for a laser MFD. Print quality was good, and so was copying speed and quality. It comes with OmniPage SE OCR and Presto! PageManager.

The Award

Brother MFC-7420

The software bundled with the Brother MFC-7420—our Zero1 award winner—comprises the MFL-Pro suite with PaperPort 9.0SE OCR, and also a utility to set up the unit over a network. The MFC-7420 has a toner duty cycle of 3,500, making for an economical cost per page of 61 paise. Rs 18,000 for this model is justified because of the fax, ADF, and sheet-fed scanner.

LAPTOPS

Like most other categories, notebooks experienced serious price drops last year. A few months after our notebook test, we were surprised to see the specifications of notebooks from major players like Dell and HP being upped—instead of dropping prices, we were seeing better CPUs, more memory, and bigger drives on identically-priced models. We also saw the intorduction of the latest series of DX10 graphics chipsets into the latest models. For Windows Vista, 2 GB of RAM is considered mandatory, and its good to see vendors giving us more memory, considering that was our number one gripe with most of the 1 GB laptops anyways.

HP DV6226tx

PERFORMANCE LAPTOPS

The Reigning Champion
HP DV6226tx

Our winner, the HP DV6226tx, was a winning combination of on-paper specs, features, ergonomics, style, and functionality. A Core 2 Duo processor (T5200) and 1 GB of memory, a GeForce 7400GO graphics solution, and inbuilt speakers by Altec Lansing meant the DV6226tx was an attractive bundle. At Rs 56,990, it wasn't pricey either—Gold belonged here.

The Contender
Dell XPS 1530

Dell's XPS 1530 is a superb laptop. Available for as low as Rs 55,000 (and up to Rs 85,000 if configured with all the bells and whistles), the XPS 1530 is stylish, fast, and suitably elegant. The best part is, Dell allows customisation of the processor, memory, graphics solution, and hard drive, among other variables. Our XPS 1530 came configured with a Core 2 Duo T7300, 2 GB of RAM, and an 8600GT graphics solution, along with a 160 GB 7200 rpm hard drive and a 9-cell battery that was good for 3 hours. All this for Rs 68,000—a real contender for the prize!

The Award
Dell XPS 1530; HP DV6226tx

The XPS 1530 oozes style, finish, and build quality, and blazing performance at an excellent price point to boot. The only issue we can see with Dell is the availability and presence in our markets. HP has a solid presence in India, with service outlets everywhere, and you can pick an HP notebook off a shelf, while with Dell, you need to order online, and there are delivery times among other inconveniences involved. Unfortunately HP hasn't really upgraded the specs of the DV6xxx series so its one for the Dell.

So we're at an impasse... we have a better, faster product that needs a better dealer network to become a truly great and hassle-free deal. We're awarding a joint winner here—no runners up; Dell's XPS 1530 and HP's DV6226tx share our Zero 1 award.

Dell XPS 1530

Two excellent products—one brilliant product from a brand that needs more market presence in India, and the other a good product that could use a few upgrades under the hood from a tried and tested brand and a majot player in the Indian market.

VALUE LAPTOPS UP TO RS 45,000

The Reigning Champion
Compaq Presario v3225AU

The value market for laptops mostly consists of students and executives who either can't really afford to spend more, or simply won't because they don't really need all that performance. This doesn't make the entry-level category any less exciting, since manufacturers have less of a budget to play around with—and this ensures they try really hard to match value with performance. This is by far the most fiercely-competed market segment. The Compaq Presario v3225AU exemplifies value with a nice balance of performance and looks.

The Contenders
Dell Inspiron 1520

Dell's Inspiron 1520 rears its head to strike at the v3225AU. It's got a faster processor and more memory, and is infinitely more configurable. The only minus is that it's not ready off the shelf like Compaq is. Of course, it's costlier too, but that's due to the faster components. Another minus for the Dell would be its bland exteriors—there's nothing bland about the

Compaq Presario v3225AU.

The Award
Compaq Presario v3225AU

We feel a terrific package for the value audience should have strong roots in, well, value. The Compaq v3225AU brings strong value to the entry-level segment. It sports the high-gloss finish and the kind of design that HP has

brought to their entire line-up. The Zero1 for this year's Value Laptop segment belongs to the Compaq v3225AU.

ULTRA-PORTABLE LAPTOPS

The Reigning Champion
Sony Vaio SZ483N/C

Ultra-compacts are rare beasts—and even more rarely sought-after because of the high price associated with fitting high-performance components into a cramped space. Sony's SZ483N/C was an excellent performer, built from a carbon fibre like material, which made the laptop extremely light, and a white LED display that made viewing anything a pleasure, not to mention slimming down what was already a very compact laptop. It was powerful, too, with a Core 2 Duo T7400 and a GeForce 7400GO with 2 GB of RAM. The fact that you can switch between an Intel X3000 and the NVIDIA graphics solution for battery life or power usage is another plus.

The Contender
Sony Vaio VGN-SZ58GN/C; Dell XPS 1300

The Sony SZ483N/C has been replaced by a more powerful model, priced identically. That one features a lightning fast T7700 Core 2 Duo processor and a GeForce 8400GS, and is called the Vaio VGN-SZ58GN/C.

Dell's new XPS 1330 is a serious contender to the throne for the most compact yet powerful package. It sports a T7500 and 2 GB of RAM, a GeForce 8400GS graphics card, and a 160 GB, 7200 rpm drive. Serious horsepower for something with a 13.3 inch screen, and enough juice for even moderate gaming! Of course, the portability is further enhanced with the option of a crisp, WLED display that is even slimmer.

Although the XPS 1330 is a good looking piece of hardware, the Vaio SZ483N/C is absolutely gorgeous—and you have to see it in the skin to believe that a laptop could look so absolutely up-market.

The Award
Sony Vaio VGN-SZ58GN/C

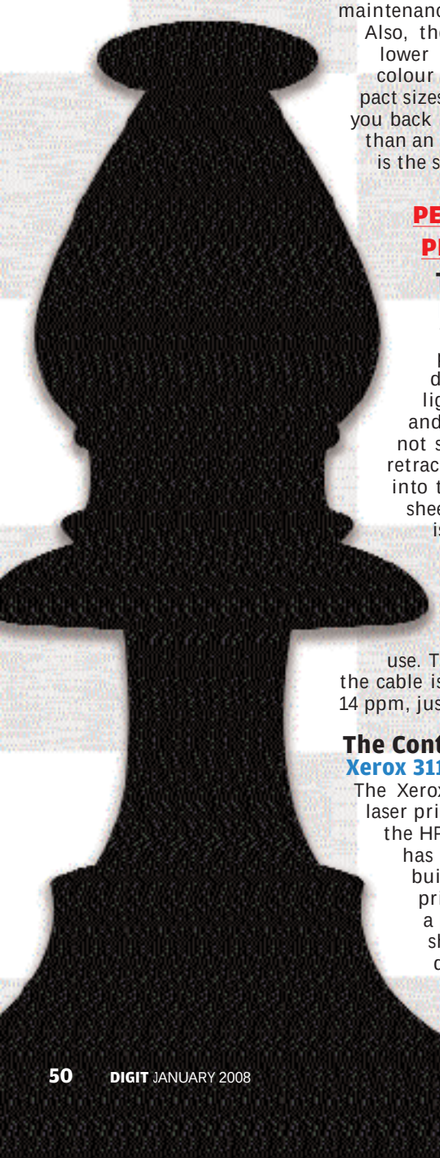
The Sony Vaio VGN-SZ58GN/C is more than a match for the XPS 1330. Also, the build and look that Sony's Vaio branding sports is

something that Dell's XPS series can only dream of. We're awarding our Zero1 to the Sony Vaio VGN-SZ58GN/C.

LASER PRINTERS

Laser printers have evolved over the past few years; they are more compact and manageable, and less expensive. The ability to produce fast, smudge-free prints has always been their selling point over inkjets. In 2007, we saw laser printers have achieve a level of efficiency that lets them output paper at a speed very close to the claimed speeds.

Once confined only to offices, thanks to the ever-dropping prices, the laser printer has come a long way towards finally gaining acceptance from SoHos and even at homes. The advantages that they have over inkjets are apparent—they are fast, they produce clean and sharp prints, they require little maintenance and are generally more rugged. Also, their cost per page is remarkably lower than inkjets. With even some colour laser printers appearing in compact sizes, there is really not much to hold you back from getting one of these rather than an inkjet and this is what we predict is the shape of things to come.



PERSONAL LASER PRINTERS

The Reigning Champion

HP LaserJet 1020

The vertical profile design of this printer means it occupies less desk space. It weighs just 5 kg—light. It has a 234 MHz processor and just 2 MB RAM, though that did not seem to slow it down much. The retractable input paper trays fold back into the body and can hold up to 150 sheets, sufficient for any SoHo. There is also a manual feeding tray for the occasional quick printout. The printer cartridge is easily accessible by popping open the printer's top panel. The control panel is very easy to use. The printer supports USB 2.0, and the cable is provided. Print speed is around 14 ppm, just 1 less than the claimed 15.

The Contender

Xerox 3117

The Xerox 3117 is an entry-level desktop laser printer coming at a great price. Like the HP 1020, it too is very compact and has a vertical profile design. The build quality of this creamy-white printer is simply superb. It achieves a printing speed of 15 ppm, just 2 short of the claimed 17. The print quality was good in the text as well as graphics and there was no smudging anywhere. Though it is no printer extraordinaire, the incredibly low price of just Rs 4,500 makes it the cheapest on this planet!

The Award

HP LaserJet 1020

The HP LaserJet 1020 takes just 9 seconds to print a normal text document. Text print quality was marginally better than that of most other printers. It was the best printer in the photo document printing test, reproducing greater details in the dark areas, something the competition couldn't manage. Finer details and highlights were reproduced perfectly, too.

Good printing speeds, impressive print quality, and decent pricing go into taking this printer ahead of the rest; in addition, the unmatched warranty, easy availability of consumables, as well as good service and affordable toner prices fetch this printer the Zero1 award in this category.

LCD MONITORS

LCDs have evolved from an emerging upstart to a mature technology. We're seeing panel costs falling, courtesy cheaper and better TN panels entering the market. The costlier PVA and S-IPS panels are also becoming cheaper, albeit at a snail's pace. We've seen 17-inch monitors being phased out in lieu of 19-inch panels at the same prices. 22-inch monitors are threatening the status quo.

19-INCH MONITORS

The Reigning Champion

AOC 197S

The AOC 197S bagged our Best Buy Gold award for its sterling value with decent performance. Although based on a TN panel the 197S impressed with decent colour rendition in DisplayMate, and good overall contrast. Although its not the equal of an S-IPS panel or an MVA panel as far as both these parameters go it also costs a fraction for what these panels cost.

The Contender

HP W1907; Dell E198WFP

The HP W1907 was another brilliant monitor—very good colour and contrast for a TN panel. The Dell E198WFP is yet another beauty—a good looking widescreen, and one of the best colour renditions we've seen for a "mere" TN panel. In fact, this monitor is very suited for image editing professionals and multimedia aficionados alike. Aesthetically the E198WFP has a beautiful stand, and a very narrow bezel—ideal for a dual monitor setup.

The Award

Dell E198WFP

Dell's E198WFP really cleans up here—colour brilliance is not really associated with TN panels, but this one proves an exception in more ways than one. Definitely Zero1 material—which is why we're awarding it. HP's W1907 is also an excellent monitor but it just isn't the price league of the Dell—besides being a great performer it's a great steal at the price as well.

22-INCH MONITORS

The Reigning Champion

None currently!

We've included a 22-inch category for our readers just because 22-inchers now seem to be de facto for mid-range consumers. In fact, based on the popularity of this category, we've decided to include it as a new category in our tests.

The Contenders

ViewSonic VX2235WM; ViewSonic VX2255WM; Dell E228WFP; BenQ FP222W; Acer AL2216W; Samsung 226BW

Many and varied: ViewSonic's VX2235wm and VX2255wm, Dell's E228WFP, BenQ's FP222W, Acer's AL2216W, Samsung's 226BW. All these are TN panel-based LCDs.

The Award

Dell E228WFP

It was a closely-fought battle. Dell's E228WFP is an excellent panel with great colour and contrast once it's properly calibrated. The only issue we see is availability. BenQ's FP222W is another excellent multimedia performer with nearly as good colour rendition as the E228WFP, the only minus is its a little bulky. The VX2235WM is good, but we didn't like it's performance in some of the colour tests, and the bezel is too large.

We had a good time thrashing these monitors for all we were worth—Dell's E228WFP is available for as low as Rs 16,000, and it's a brilliant buy—great colours and great contrast at a great price. It edges out the two ViewSonics and the BenQ FP222W for the Zero1 Award.

MOTHERBOARDS

The last couple of years have seen the release of a multitude of chipsets from Intel, NVIDIA, AMD, and SiS. Each of these have their advantages, so there's a myriad of options to choose from when it comes to motherboards.

NVIDIA 680I/650I CHIPSET BOARDS

The Reigning Champion
ASUS Striker Extreme

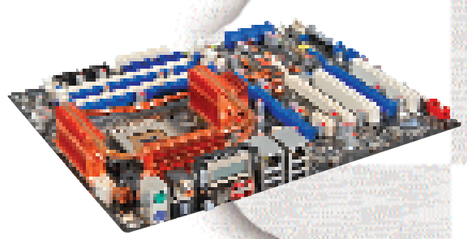
The NVIDIA 680i has been around for quite some time, and was a path-breaking chipset at its launch. Thanks to the future-proofing by NVIDIA, it's still got the power to take on some of the newer chipsets. The ASUS Striker Extreme, which belongs to the "Republic of Gamers" franchise, is based on the 680i, and has a lot of copper heat-pipes and heatsinks to take care of the cooling needs of the Northbridge and Southbridge. There is support for multiple graphics cards in SLI configuration, and along with support for 8-channel HD Audio, this board is good for gamers.

The Contender
ASUS P5N32-E SLI

This board has one of the best-looking cooling solutions, and the layout is excellent. There are heat-pipes and heatsinks for the Northbridge as well as the Southbridge; this makes it run cooler than other boards in its category. It's actually very similar to the ASUS Striker Extreme in terms of most features and performance, with certain exceptions, notably the absence of solid-state capacitors, which are important for a board's longevity, and a few fancy things like LED buttons right on the board for power On/Off, reset, and CMOS reset.

The Award
ASUS Striker Extreme

The ASUS Striker Extreme posted excellent scores in every benchmark, and top-scored in almost every gaming benchmark. It has a good bundle of games (including GRAW), and accessories such as cooling fans and USB brackets are also provided. Priced somewhat high (Rs 21,400), this is the Zero1 award winner in this category.



INTEL P965 CHIPSET BOARDS

The Reigning Champion
ASUS P5B Premium Vista Edition

The P965 chipset is pretty old, but it's a well-known secret that the chipset unofficially supports the 1333 MHz FSB through BIOS updates, and thus has support for the new Penryn—which breathes new life into this seemingly fading chipset. The ASUS P5B Premium Vista Edition is based on the P965; it is a very feature-rich and fast board, though it costs quite a bit (Rs 14,750). It supports up to seven SATA hard drives and an additional one via the E-SATA port. There is also support for legacy PCI cards (three slots). It has all-solid-state capacitors, which add to its stability and increase its life.

The Contenders
MSI P965 Platinum

A board that's been around for quite some time, the P965 Platinum supports up to six SATA devices and one E-SATA. The BIOS supports overclocking with fine adjustments, making it a good choice for enthusiasts. Being a dated board, it was natural for it to be a bit behind in terms of features as compared to the Reigning Champion, but it is priced well, and performance is superior.

The Award
ASUS P5B Premium Vista Edition

The ASUS P5B Premium Vista Edition is eminently overclockable. Performance across the range of our tests was one of the best in its category. The bundle is handsome: an IR remote receiver (to control several functions, including the ability to hibernate, power down, and even play music), an array microphone, and a tiny LCD screen that allows you to view pop-ups such as RSS feeds (it will even sync with Web sites when your PC is on). You have a clear Zero1 winner in this ageing but not toothless category.

INTEL INTEGRATED SOLUTIONS

The Reigning Champion
Gigabyte GA-G33-DS3R

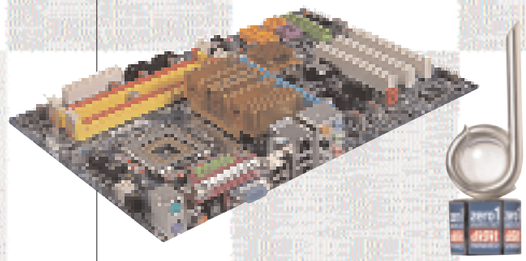
Integrated graphics platforms are of high importance in India because of cost considerations. The Gigabyte GA-G33-DS3R motherboard, based on the Intel G33 chipset, has a very good layout, is very well-built, and looks attractive. It employs Realtek's latest ALC889A codec-based HD-compliant sound solution.

The Contender
Gigabyte GA-G33M-S2H

The GA-G33M-S2H, though also from Gigabyte, is clearly built for a different target audience. Priced at an unbeatable Rs 5,950, this board has an HDMI port that lets you hook up a compliant display or TV. With the ALC889A-based HD audio solution, this board screams that it is one of the best solutions for an HTPC.

The Award
Gigabyte GA-G33-DS3R

The Gigabyte GA-G33-DS3R is an enthusiast's solution with greater overclockability, solid-state capacitors, and an ATX form factor. In addition to six internal SATA devices, it supports two E-SATA devices too. It supports an FSB of 1333 MHz, thus extending support to the latest Intel processors. If you decide that the integrated graphics is inadequate, you can opt for any PCI-Express graphics card, thanks to the x16 port. (PCI slots also figure.) This motherboard is priced at Rs 9,500 and is worth every penny, which makes it our Zero1 award winner.



AMD INTEGRATED SOLUTIONS

The Reigning Champion
Gigabyte GA-MA69G-S3H

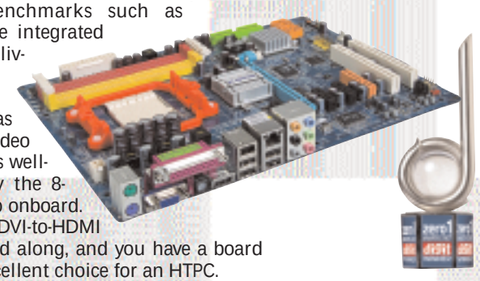
Integrated graphics platforms are of high importance in The AMD platform is still strong, delivering good performance at good value. The Gigabyte GA-MA69G-S3H has a nice layout, which makes installation of add-on cards very easy. There are three PCI slots. It supports the latest AMD processors with the AM2 socket, and an FSB of 1600/2000 MHz. Up to four SATA devices are supported, and there's even an E-SATA bracket.

The Contender
Zebronics ZEB-N61M2

The onboard graphics on this board can handle low to medium gaming, and the 8-channel audio solution is decent, too. This is one of the oldest boards in the category, so it loses out on new features, but it more than made up with good performance and an unmatched price of Rs 2,150.

The Award
Gigabyte GA-MA69G-S3H

The Gigabyte GA-MA69G-S3H delivers solid performance, ahead of much of its competition, especially in benchmarks such as PCMark 2005. The integrated Radeon x1250 delivers decent performance in gaming, and has support for HD video playback, which is well-complemented by the 8-channel HD audio onboard. Add to this the DVI-to-HDMI connector bundled along, and you have a board that makes an excellent choice for an HTPC.



INTEL P35 CHIPSET

The Reigning Champion
ASUS P5K Premium

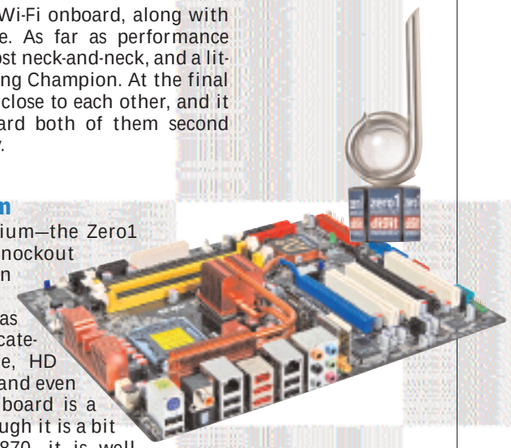
The P35 is a relatively new chipset from Intel, and supports the newest breed of processor architecture—the 45 nm Penryn. The Asus P5K Premium has an excellent layout and exceptionally good build quality. The use of high-quality components, such as solid-state capacitors, adds to the board's stability and longevity. Good support for overclocking is another feature, and this makes it an enthusiast's delight. It supports up to 8 GB of DDR2 memory at 1066 MHz, more than enough to take care of your needs for years.

The Contender
ASUS P5K3 Deluxe WiFi-AP; Gigabyte GA-P35-DS3R

Both the Asus P5K3 Deluxe WiFi-AP and the Gigabyte GA-P35-DS3R are well-laid-out, high-end motherboards with good build quality. Both support the latest Intel processors and also DDR3 memory at 1333 MHz, meaning they're quite future-proof. While the Gigabyte board supports up to eight SATA devices and one E-SATA, the ASUS has Wi-Fi onboard, along with support for CrossFire. As far as performance goes, these were almost neck-and-neck, and a little behind the Reigning Champion. At the final tally, these stood too close to each other, and it was only fair to award both of them second place in this category.

The Award
ASUS P5K Premium

The ASUS P5K Premium—the Zero1 winner—delivered knockout performances in whatever tests were thrown its way; it was the top scorer in its category. With CrossFire, HD audio, dual Gigabit, and even Wi-Fi onboard, this board is a gamer's delight. Though it is a bit expensive at Rs 15,870, it is well worth the price considering the performance and the features you get.



PORTABLE MEDIA PLAYERS

In 2006, it was MP3 players that we tested under this genre. 2007 saw things change. There was video playability prominently featured on almost every device, barring a few odd ones. In addition, there were features such as calendar, syncing with the PC e-mail client, etc. added to the spec-sheet. The devices were therefore referred to as Personal Media Players (PMPs).

UP TO RS 5,000

The Reigning Champion
SanDisk Sansa c240

The "Lil Monsta", as it's called, looks unassuming, is sleek like a USB stick, and has top-class build quality. There is 1 GB of internal memory, though this can be augmented by means of a MicroSD card. The Li-Ion battery lasted us 13.5 hours, which is pretty good considering the fact that it has an LCD screen rather than the power-efficient OLED.

The Contender
Transcend T.sonic 840

This is a brand-new MP3 player, the replacement for the T.sonic 630 models that followed the 610. The major upgrade has been that the 1.8-inch screen does a resolution of 176 x 220. This means you can now use this device to read books as well. You can find the 4 GB version of this player for just under Rs 5,000.

The Award
Transcend T.sonic 840

The Transcend T.sonic 840 is brilliant value for its price, and displaces the Sansa c240 as the Zero1 winner. A fresh new design, the large number of features, and loads of memory make it a very good buy for almost anyone. There's even a 2 GB version for Rs 600 to 700 lesser.

RS 5,001 TO RS 10,000

The Reigning Champion
SanDisk Sansa e250

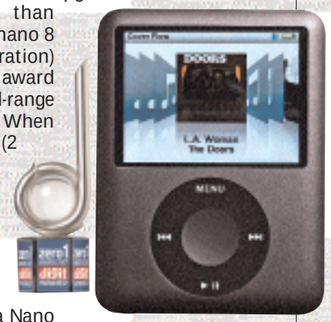
This one has it all: FM radio, voice recording, video playback, photo viewing, customisable equaliser, and expansion—you name it! It looks good, too, with the best-built, scratch-proof titanium alloy back. There is support for custom playlists and equalisers, and it can read media stored inside folders.

The Contenders
Apple iPod nano 8 GB (third generation)

The new iPod nano 8 GB has improved on the shortcomings of the older nano. This one has a 2-inch screen for video. It's wide, but it's still tiny, and more importantly, it's light. Dropping memory prices means that now, an 8 GB MP3 player is around Rs 8,500. The Sansa needs to put out something special if it is to keep its top spot!

The Award
Apple iPod nano 8 GB (third generation)

Improvements and upgrades have made the nano better than ever. The iPod nano 8 GB (third generation) wins the Zero1 award in this, the mid-range PMP category. When the older nano (2 GB) was around, it was priced around Rs 8,150. This one makes much more sense. Users already using a Nano might not find this worth the buy, but for those looking for something under Rs 10,000—there's nothing as good as this. It's a lot about the styling and good pricing.



ABOVE RS 10,000

The Reigning Champion
Cowon D2

A great looker, this PMP has a rather large touchscreen—a brilliant 16 million colour display. Although it is made of plastic, the build quality is very good. The touchscreen is the only interface, and therefore there aren't many buttons—a stylus is provided to aid in navigating the slick icon-based interface; not that it's required—you can even use your fingertips. It supports a wide range of audio formats, but there is native support for only two video formats—AVI and MPEG. This issue, however, is taken care of by the bundled converter software. If the 4 GB capacity falls short, there is the option to add in an SD card.

The Contender
Apple iPod Touch

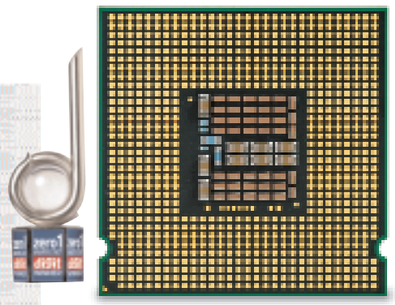
There's no better contender for the Cowon D2 than the latest and most talked-of gadget from Apple—the iPod Touch. It's similar to the iPhone, except, of course, there's no phone. The Touch tag indicates a touchscreen, and unlike the ones you find on some phones, this one uses multiple touches to allow you to flip through albums, scroll, and resize. This is clearly a threat to the dominance of the Cowon D2.

The Award
Apple iPod Touch

The iPod Touch comes in two flavours—8 GB and 16 GB. It's possible to find the 8 GB model for around Rs 14,000 in Indian markets—an absolute killer price. Audio, video, photos, Web browsing, you name it—the Touch has it. Think about it—you can even use it to watch YouTube videos! It'd be unfair to not award it the Zero1 in this category; people love it, and we do, too.

PROCESSORS

A lot has changed from the Pentium and Athlon series of yore. Intel's Core 2 Duo (C2D) is a breed apart and the reigning champions of the number crunching game. AMD has lost the race for now, and with their Phenoms failing to deliver, there's nothing to stop Intel's juggernaut. It's only in the value segment that we see AMD fitting nicely; some AMD processors offer the best bang for the buck.



THE BEST DESKTOP PROCESSOR

The Reigning Champion
Intel QX6850

The QX6850 is Intel's flagship processor—which we'd tested in our annual comparison—and it performs admirably. Though it's a quasi-quad-core, its performance in multi-threaded application is breathtaking. With 8 MB of L2 cache and 1333 MHz FSB, the QX6850 running at 3 GHz just zips through most applications. Retailing at Rs 45,000, the QX6850 is very expensive, but with there being absolutely no competition, you should expect to cough up that sort of money!

The Contender
Intel QX9650 (Penryn)

Within a month of our processor shootout, Intel unleashed quite something else—the QX9650, the first 45-nanometre silicon piece. Running at 3 GHz, with a 1333 MHz FSB, it has a 6 MB cache per die—a huge 12 MB in all. Built on a 45nm process, the QX9650 is much more power-efficient as compared to its older sibling. The addition of 47 new instructions under SSE4 gives a big boost to multimedia applications. Overall, we saw a nice 7 to 10 per cent boost in performance across our tests. Retailing at Rs 50,000, the QX-9650 is definitely a step in the right direction.

The Award
Intel QX9650

If money is no bar, Intel's Core 2 Extreme QX9650 is definitely the processor to go for, and given the performance advantage, we have no hesitation in awarding it our coveted Zero1 award for the best Desktop processor.

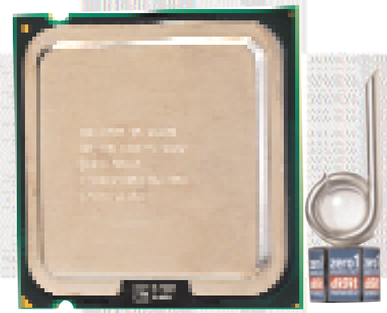
A PROCESSOR FOR EVERYONE

The Reigning champion
Intel Core 2 Quad Q6600

The Intel Q6600 is in its own class; no processor can hold a candle to its excellent performance / price ratio; it is sweetly priced at Rs 11,500. The newer AMD Phenom processors have had a hard time trying to beat the Q6600...

The Contenders
AMD Phenom 9600 and 9700

Based on pricing and clock speed, the Phenom 9600 and 9700 are the real contenders to the Intel Core 2 Quad Q6600. However, availability and compatibility with existing hardware will be an issue for the new Phenoms. Further, the Q6600 offers better performance than both the new AMD processors.



The Award
Intel Q6600

For now, it's a one-sided game; the Q6600 is the clear winner. It rules supreme and is the processor to buy to build a gaming or multimedia PC. It gets our Zero1 award for its performance as well as pricing.

PROJECTORS

Watching a movie, giving a presentation, or simply huge-screen gaming—everything is possible on a projector today, which is now within the reach of the general consumer. We did see changes in this category as compared to last year. 2006 was dominated by SVGA projectors (capable of 800 x 600), whereas this time round, the picture was different, with XGA projectors (capable of 1024 x 768) being the dominant breed. We've also seen the entry of native HD (720p) projectors for the home theatre audience. Falling prices add to the attraction of a projector, and a large LCD or Plasma screen just cannot capture the same cinematic experience.

XGA PROJECTORS

The Reigning Champion

Acer PD726W

The Acer PD726W was perhaps the best-looking of the projectors we tested last year. A sober black-and-silver colour tone and rugged build quality make it really appealing. Connectivity options are endless, with Component, S-Video, RCA, D-Sub, DVI, and even HDMI thrown in—and there's network connectivity via RJ45 and Wi-Fi. It is also possible to interface with the device through RS-232 and USB (both USB A and B type connects are provided in the package). The menu interface is easy. It allows you to specify an IP address to which a message can be automatically sent in case something goes wrong.

The Contender

NEC NP1000

NEC's NP1000 showed signs of excellence, with an ANSI brightness of 3400 lumens and an actual static contrast ratio of 800:1. The

NP 1000 is very good for home and professional use alike. It has got five bayonet lenses inside that can vary from 30 to 500 inches, offering an amazing viewing experience when placed at a distance of 2.5 to 68.5 feet from the screen. It offers both vertical and horizontal lens shift, allowing nearly limitless projector placement. This projector also offers integrated high speed wireless LAN IEEE 802.11b/g via an optional wireless card. It has presentation, broadcast, data conferencing and training mode, that gives the user, the flexibility for just about any wireless application. Remote diagnostics features enable the monitoring of the status and adjustment of different functions of the projectors remotely over a network, making it perfect for any corporation. The NP1000 features Eco-mode technology, that increases the lamp-life by at least 50 per cent. To add to this, the cooling fan continues to run for some time even after the power is disconnected and the in-built sensors protect the lamp and projector from overheating. There are also some security features such as logo lock, password protection cabinet control lock which let you prevent anyone from changing the its settings. Its price of Rs 1,20,000 does put it into the high-end bracket as far as affordability goes.

The Award

Acer PD726W

The Acer PD726W has a very good brightness rating spec—3700 lumens. Coupled with a high contrast ratio (2500:1), the PD726W is very much a multimedia aficionado's dream. When we did the 256-shade intensity screen calibration, we encountered smooth transitions between the shades. It performed very well in the presentation tests; text reproduction was

sharp. While halos did appear around extremely light colours, they would disappear by tuning the brightness and contrast. This is a great movie projector with sharp image rendition and great contrast, and a great projector for big-screen gaming and movies alike. Without a shadow of doubt, this is the only projector that can win Zero1—absolutely no hesitation whatsoever!

SPEAKER SETS

PC sound has matured over the past decade to such an extent that it gives hi-fi sets a run for their money. This has become possible due to advancements in PC sound cards, and more so because the PC speakers of today are much better than those of a few years ago.

2.1 sets are considered entry-level, though the more expensive 2.1 sets are audiophile-class. 5.1 sets are better for multi-channel scenarios such as games and DVD movies.

2.1 SPEAKER SETS

The Reigning Champion

Altec Lansing ATP3

These sleek black speakers will look good on any desktop. They are also built tough. There are controls for Bass, Treble, and Volume. The large, 6.5-inch woofer produces rich bass, and each of the satellites has two 1.1-inch tweeters and a 3-inch driver. The woofer is 18 W RMS, while the satellites are 12 W (combined)—more than what might be expected of a 2.1 set. The power adapter is built into the speakers.

The Contender

Altec Lansing FX4021

As with the ATP3, build quality is rugged. There are two 5.25-inch drivers in isobaric configuration to provide double the amount of bass. The satellites have 40 mm and 18 mm drivers to handle a higher range of frequencies. It comes with metal stands that add to the aesthetic appeal. There's a wired as well as a wireless remote control. Overall performance was good, and the bass stood out. This set is priced a little on the higher side—Rs 7,500.

The Award

Altec Lansing ATP3

The Altec Lansing ATP3 is strong in all areas of the audio spectrum, meaning both Western and Indian music will sound good. Whether it's games or movies, these speakers will not disappoint. Even with a relatively high price tag of Rs 3,400, these speakers are too good not to be awarded the Zero1 in the 2.1 category!

5.1 SPEAKER SETS

The Reigning Champion

Artis S6600R / FM

The Artis S6600R/FM set is unique: it has not only FM radio, but also AM—an inexpensive, very useful add-on. Though they sport a chrome finish, the speakers aren't gaudy. There is a discrete amplifier box with all the controls. The full-featured wireless remote lets you control everything including the radio and individual channel volumes. In addition to the 5.1-channel input, there is also a stereo auxiliary input to let you connect stereo audio sources.

The Contenders

Artis X10 Mini

Built very well, the Artis X10 Mini (Rs 12,000) comes with nice, sturdy steel stands for rear speakers to elevate them to the ear-level of the listener. The satellites have veils with grilles behind, giving the drivers some extra protection. The subwoofer is made of wood; wood grains are visible on the exterior, giving it a classy look. The provided cables are colour-coded, and are of exceptionally good quality. The strong bass never drowned out the treble, and we could hear every bit of detail even with the bass at full throttle. Cranking up the volume and bass levels did not seem to do any damage to the sound quality.

The Award

Artis S6600R / FM

As far as audio quality is concerned, the Artis S6600R / FM is strong throughout the spectrum—treble in particular. In our gaming and DVD movie tests, it reproduced directional sound with great accuracy and clarity. The Artis S6600R / FM is an all-in-one package at a very good price of Rs 8,500; it wins the Zero1 award in the 5.1 category.

TV-TUNERS

The launch of Vista this year saw the 2007 saw Windows Media Center—which depends on compliant TV-Tuners to turn your PC into an entertainment centre—reach everyone, rather than just people who bought Media Center PCs. We tested TV-Tuners in three categories: Internal PCI, External USB, and External Set-top, the first being the most popular as far as Desktop PCs are concerned. We also saw the first digital TV-Tuners making an appearance, though we didn't test them; the availability of digital terrestrial broadcasts is very limited. We will probably see more of these next year; digital broadcast is expected to grow.

INTERNAL PCI TV-TUNER CARDS

The Reigning Champion
Leadtek WinFast PVR2000

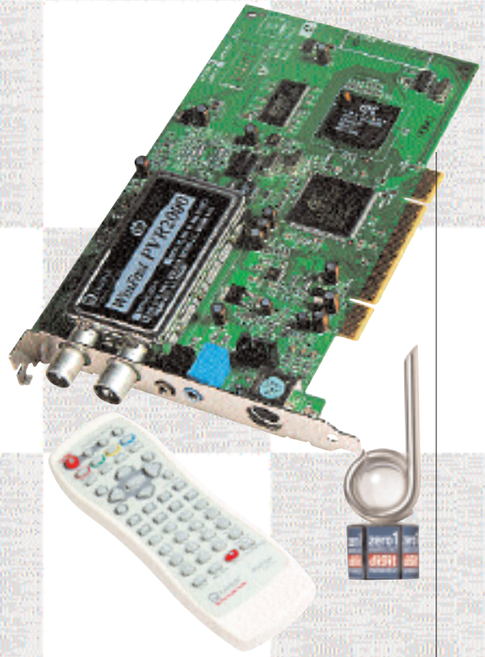
This was one of a kind amongst the internal PCI TV-Tuners. It was the only one to feature an MPEG-2 decoder chip (which offloads the CPU from the task of encoding video while capturing). This TV-Tuner is Windows MCE and Vista MC ready. It sports the Conexant CX23882-39 chip, which is known to deliver superior picture quality owing to the 10-bit ADC. It supports the PAL and NTSC TV standards with stereo audio. The full-function remote gives you complete control over the TV card, thanks to the superb WinFast PVR software.

The Contender
Leadtek Winfast TV2000 XP Global

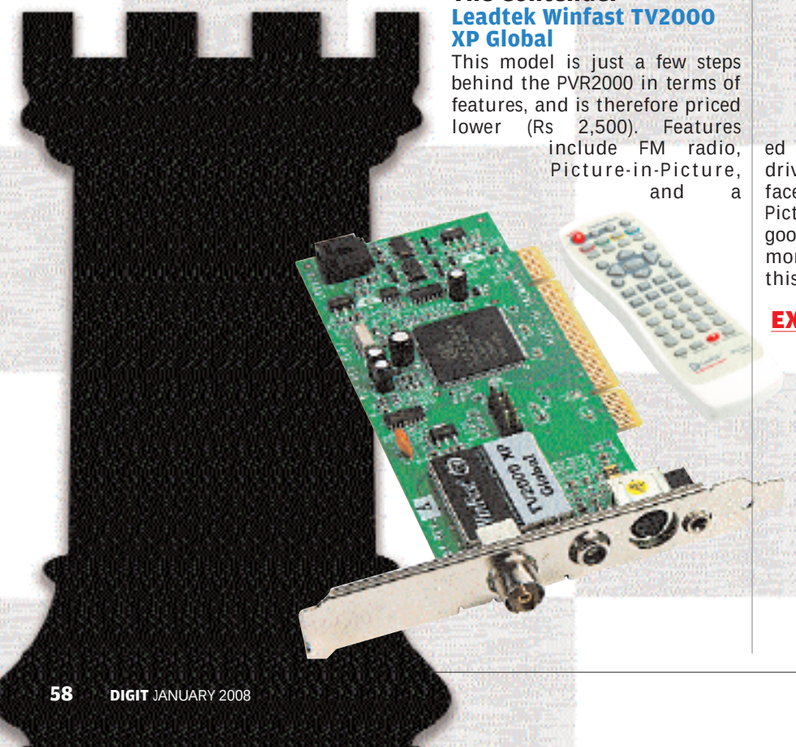
This model is just a few steps behind the PVR2000 in terms of features, and is therefore priced lower (Rs 2,500). Features include FM radio, Picture-in-Picture, and a remote control that can control the Media Player in Windows. In our tests, its performance was as good as that of the PVR2000.

The Award
Leadtek WinFast PVR2000

The Zero1 award winner in this category, the Leadtek WinFast PVR2000 managed to detect-



ed weak TV channels during our tests. The driver installation is simple, and the PVR interface is very easy to understand and use. Picture quality was top-notch. It comes with a good software bundle, which makes it even more worthwhile to spend that Rs 5,500 on this card.



EXTERNAL USB TV-TUNERS

The Reigning Champion
Leadtek WinFast PalmTop TV

Now here's an external USB TV-Tuner that looks good enough to adorn your desktop. This was the only external TV-Tuner to feature an MPEG-2 encoder. It has out-of-the-box support for Windows MCE and is Vista MC ready.

The Contenders
Compro VideoMate Action Pro

This one is, without a doubt, the most rugged of external TV-Tuners, with a strong metallic casing. It was one of the only three tuners to have a Composite port, which lets you hook up a camcorder so you can transfer analogue video recordings and get them converted into digital video. It comes bundled with all the necessary cables. In this category, it detected the highest number of cable TV channels, and didn't even require fine-tuning. The video quality was as good as that of the WinFast PalmTop TV.

The Award
Leadtek WinFast PalmTop TV

Only the lack of certain features cost the Compro VideoMate Action Pro the Zero1 award. As for the Leadtek WinFast PalmTop TV, which is our winner, the included PVR software

has all the capabilities you might expect. The remote can be used to control everything. The tuner comes with a rich bundle of software, which includes WinFast PVR, CyberLink PowerDVD, Orb, Ulead's Cool 3D, DVD MovieFactory 3SE, and VideoStudio 9 SE DVD. And finally, the image quality was the best we've seen thus far with an external USB TV-Tuner.

EXTERNAL SET TOP TV-TUNERS

The Reigning Champion
AVerMedia AVerTV Box7

AVerMedia has been the dominant player for the past many years as far as external set-top TV-Tuners are concerned, and it has remained that way. The AVerTV Box7 is way ahead of the competition in terms of performance and its advanced features. It is the most rugged of the lot; it comes with a stand to keep it upright.

The Contender
Tech-Com SSD-TV-722

This TV-Tuner has most of the features you would expect, and is reasonably priced at Rs 1,750. Useful features include Picture-in-Picture, which can be controlled via the

remote. The Tech-Com SSD-TV-722 comes with an MMI (MultiMedia Interface) cable for video and audio inputs from external sources such as DVD players. It supports a healthy viewing resolution of 1280 x 1024. It detected 84 out of 90 channels—not bad—and image quality was quite decent too.

The Award
AVerMedia AVerTV Box7

The Zero1 in this category must go to the AVerMedia AVerTV Box7; it was well ahead of the competition, detecting 88 channels out of 90. None of its competitors came close to it as far as image quality goes, even though some

featured similar resolutions. It supports a resolution of up to 1280 x 1024. It has all types of connectors, enabling you to connect any AV source—even your set-top box. It's priced a wee bit on the higher side, but this is as close to TV as you can get on a monitor!

WI-FI COMPONENTS

We all crave freedom: from wired telephones, wired keyboards, and even wired networks. The Wi-Fi wave reached Indian shores in a big way last year; we reviewed Wi-Fi routers (which enable wireless networking at home) and also Wi-Fi ADSL routers (which let you share your Internet connection wirelessly).

ROUTERS

The Reigning Champion

ASUS WL-530G

This device is small enough to be stuffed inside a trouser pocket. It's not small on features though—DHCP, NAT, VPN-pass through, and all the security features are there. Though not the best we have seen so far, you can make your way around ASUS' software after fiddling around for just a little while. Due to its tiny footprint, we'd recommend it to the hotspot browser on the move.

The Contender

LinkSys WRT54G

This router sports twin antennas. It has four ports with bridging, and supports 802.11 b/g. In terms of security, there is support for NAT and SP1 along with IP blocking and Wireless Isolation and encryption. It outpaced much of the competition in the Zone 1 tests. Though its signal quality is slightly inferior, where this one scores is in pricing: just Rs 3,634.

The Award

ASUS WL-530G

With unmatched speeds in our tests, the ASUS WL-530G is suitable for setting up a home or SoHo wireless office where its data throughput capabilities will be put to good use. It exhibited superior performance in the video streaming test as well—thus you won't have to sit near your PC if you have one of these. Priced at Rs 4,400, the WL-530G offers excellent value for money. Grab the WL-530G—it is the fastest Wi-Fi router out there, and our Zero1 winner.

ACCESS POINTS

The Reigning Champion

LinkSys WAP54G

This one is the AP equivalent of the WRT54G router. It is wall-mountable, and a kit to implement that is provided. It sports two antennas, so we expected it to have stronger signal strength, and this was indeed the case. An additional feature is bridging capabilities. The firmware interface is identical to that of the WRT54G, apart from the lack of routing functions. Security features such as NAT and SP1 are present, along with almost every other advanced feature such as encryption, wireless isolation, etc.

The Contenders

Senao ECB 3220

The wall-mountable Senao ECB 3220 functions as a wireless bridge and also as an Access Point. In keeping with its primary function (bridge), it showed very good signal strength. It was a steady performer and didn't lose reception in any of the tests—not even while moving between Zones; something unique, because all the other devices in the test, with the exception of the ASUS WI-600G, lost reception while the laptop was being moved between zones, thus reaffirming that the ECB 3220 has a very strong signal. Being an AP, it carries a rather expensive price tag of Rs 8,280, but because of its powerful signal, office users will find it useful as a bridge between two wireless networks.

The Award

LinkSys WAP54G

The LinkSys WAP54G demolished the competition in our data transfer tests. The performance, coupled with the attractive price tag of $80 (Rs 3,200) makes it a great buy. The remote Web interface is easy to use, and security features are well-integrated in this Access Point—making it a deserving winner of our Zero1 award.

Lead Feature

Grab These Apps!

Presenting: the most useful mobile software we can think of!

Asfaq Tapia

If you travel a lot, your mobile and laptop are quite likely your most important possessions. In this article, we present software you can't do without when on the road. Actually, even if you aren't on the road, this stuff is still cool to have!

VITO AudioNotes

One of the coolest pieces of software out there for your phone, VITO AudioNotes allows you to record audio (in WAV or MP3 format) from your phone's microphone. What this means is that you don't have to scramble for pen and paper whenever someone dictates something to you. What's more, it can record incoming and outgoing calls automatically—perfect for those sting operations!

Shrikrishna Patkar

At its highest recording quality of 96 Kbps, a 10-second WAV file takes up approximately 1 MB of space, while an MP3 of similar length takes up 135 KB—very nifty. While recording notes, you can also adjust the sensitivity of the mic with the Mic. Auto Gain option. The automatic call record function does just that—on a Windows Mobile device, selecting this option will record all calls even when the program is not running in the background.

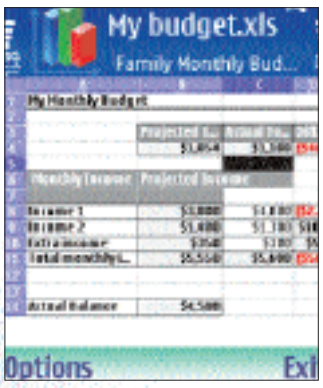
Once recorded, the calls and notes can be saved on either the phone memory or the memory card. Another interesting function of the software is that it allows you to append new recordings to previously-recorded notes or calls; for example, if you have a recording of an outgoing call, you can append your own summary of the call to the end of it and save it all as one recording.

Platform: Symbian S60, Windows Mobile
Buy from: http://tinyurl.com/2ghob7
Price: $19.95 (Rs 800)

OfficeSuite 4

OfficeSuite works on any Symbian Series 60 phone and allows you to make and edit Word, Excel, or PowerPoint documents right on the phone. Though you won't be able to make Pivot Tables or define custom style sheets, it should get the job done for a file that has to be sent urgently.

When you make a new document, it will allow you to save it on the phone or on external memory. OfficeSuite gives you nearly all the formatting tools you get with MS Office, including the red underlines for misspelled words. When you make a workbook, you can hide, freeze, or insert rows and columns, and you can use functions too.



The Excel app in OfficeSuite 4 looks pretty much like MS Excel

When using the PowerPoint application, you can switch from slide view to slideshow view or outline view. Most of the animation functions and shapes are also available.

The software won't save or read Office 2007 format files, nor will it auto-save your files every few minutes, but it does the job better than any other Office clone for mobile phones.

Platform: Symbian S60
Buy from: http://tinyurl.com/2broyc
Price: $49.99 (Rs 2,000)

Virtual Network Computing

Let's face it—in spite of having all the cool tools to help you when you're on the road, there's nothing better than accessing your computer at the end of the day. Ultr@VNC is a virtual network computing (VNC) program that allows you to do just that from absolutely anywhere.

The Ultr@VNC software consists of two parts—VNC Server and VNC Viewer. You need to install VNC Server on the host computer (at home, for example), and use VNC Viewer to browse the contents of the host machine over the Internet.

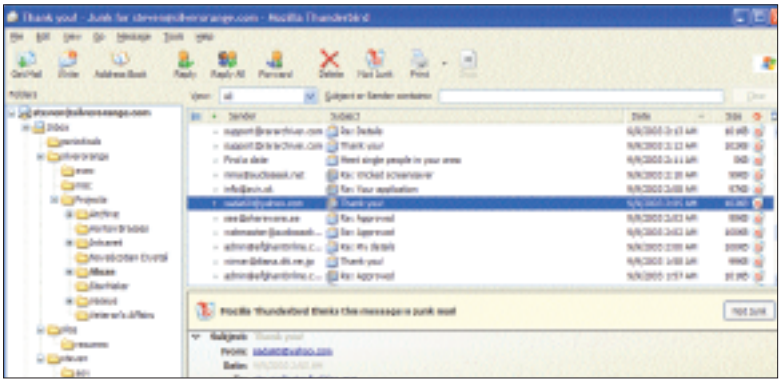
The greatest advantage of using Ultr@VNC is that it has an option called JavaViewer, which allows you to access a remote host even without having the VNC Viewer installed. All you have to do is use a Web browser with Java installed and connect to **http://[ip_address]: 5800**, where **ip_address** is your home PC's IP address. You can get Ultr@VNC free off our November 2007 CD.

Mozilla Thunderbird

Thunderbird is an open source e-mail client that rivals Outlook in terms of features and performance. It supports the POP3, IMAP, and LDAP protocols. With the release of the Beta 1 of Thunderbird 2.0, it has become increasingly clear that most of the functions available in Outlook will be available in Thunderbird too.

When released, the client will eventually support tabs to open multiple e-mails from your inbox at once. Just like Gmail, Thunderbird can also sort e-mails in a threaded view. You can configure multiple e-mail accounts to retrieve mail from. It supports the creation of multiple folders, among other things. Another new feature is the ability to tag e-mails with keywords so they can be searched for easily.

Platform: Windows (All) / Mac / Linux
Get From: http://www.mozilla.com/en-US/thunderbird/

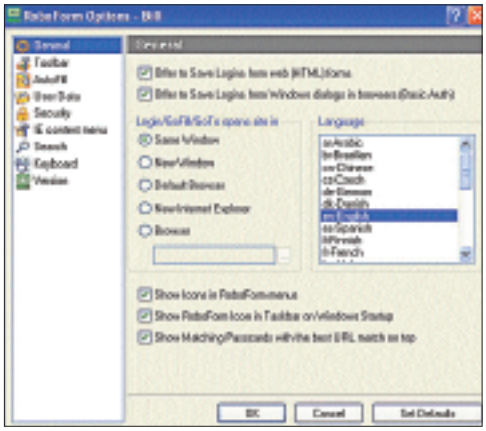


The Thunderbird e-mail program with mails sorted in folders

AI RoboForm

This interestingly-named software is a password manager and automatic form filler with some serious artificial intelligence. Why is it in this list, you ask? Simple: you don't want to be carrying slips of paper with passwords written all over them while travelling; AI RoboForm is a much better alternative.

After installing the program, you'll be asked to enter your details on an exhaustive Web form, which is stored on the computer. There on, it's all smooth sailing. When you need to fill out a form on the Web—when registering on a Web site, for example—just click "Fill Forms" and all the fields will be automatically filled with the necessary information.



The options menu in AI RoboForm

The real beauty of the software is that it is encrypts all your passwords with 3-DES technology, so there is no way your passwords will be compromised. The software works even on AJAX-based pop-up login windows (like those on Facebook). It can also generate random, secure passwords for use on Web sites, which it automatically saves for later use. There is also an option to print all the passwords stored with AI RoboForm, but that defeats the purpose of using the software! You can also password-protect your identity in AI RoboForm to prevent others from logging into your account on Web sites.

Find AI RoboForm on this month's CD.
Platform: Windows (All)
Get from: www.roboform.com

Free SMTP Server

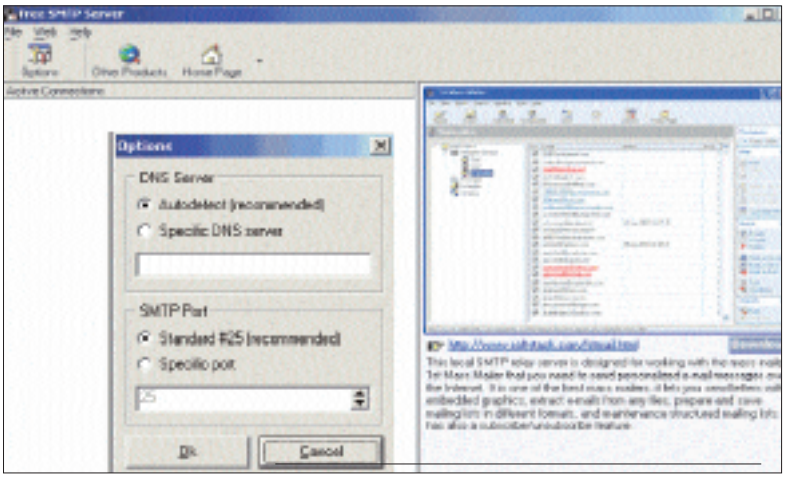
Picture this: you're on the move, and you need to send an important e-mail to a client. Your office mail server is down, or taking excessively long to send e-mails. Haven't many of us been through this situation? Fret not; you can now use software for exactly this situation.

Free SMTP Server creates an SMTP server right on your PC. It can be used with any mail client—all you need to do is change the outgoing SMTP server to **localhost** in the mail client.

When it's launched, the program will automatically detect the DNS server and port number through which to send e-mail. If you want the mail to go through a specific DNS server address or port, you can configure that, too. Be aware that that some ISPs close the SMTP port 25, forcing you to use only their SMTP server, so make sure the port is unblocked before using the program. The only drawback of the software is that if any other service is already using the specified SMTP port, it gives you an error instead of adding the request to the queue.

Free SMTP Server has no frills, but that's what makes it so fast and efficient.

Platform: Windows (All)
Get From: http://tinyurl.com/yrzl37



Changing the DNS server settings in Free SMTP Server

MojoPac

The biggest problem while using a computer that's not yours is that you don't know if it's infected, or if your activities are being logged. Of course, there are ways to find out, but you'd rather be doing something more important with your time.

Enter stage left, MojoPac. The idea behind the software is simple: it installs itself on any portable media device, from MP3 players to USB sticks, and creates a virtual environment for you to install and run applications. While most virtualisation software require you to purchase a separate licence for Windows to install on your portable media, MojoPac uses essential files from the machine that it is connected to—the host machine—to run a protected environment.

When in this virtualised mode, MojoPac places a toolbar at the top of the Desktop, which allows you to switch back to the host when required. The computing tasks you carry out in the virtualised mode stay there, and no traces of those are replicated on the host machine. All the software we installed in the virtualised mode ran perfectly. There are reports, however, of Webcams not working properly with the software.

MojoPac is a wonderful tool for professionals on the move who don't carry a laptop

MojoPac in action

There are a few things we don't really like, though. In the virtualised mode, you don't have access to the drives on the host machine, and any file transfer you want to do between your MojoPac USB stick to the host machine has to be done outside of MojoPac. The software works fine with USB 2.0 devices, but on older devices it can get sluggish; and finally, MojoPac runs only on Windows XP host machines.

In spite of its few drawbacks, MojoPac is a wonderful tool for professionals on the move who don't carry a laptop.

Platform: Windows XP only
Get From: www.mojopac.com
Price: Free (Freedom Edition), $ 49.99 (Rs 2000) (Deluxe Edition)

Blacklist

Have you ever been nagged by pesky telemarketers who won't take No for an answer? Or how about those times when you want some peace and quiet and your phone just won't stop ringing? Epocware Handy's Blacklist could be your saviour.

True to its name, the application blocks callers from calling you. When you run Blacklist for the first time, a dialog box appears, which allows you to block callers. From here, you can choose if you want to block numbers from recent calls, private numbers, unknown numbers, and your contact list; if you want to enter the number manually, you have that option too. The Settings menu allows you to automatically add rejected numbers to the blacklist and keep a log of all blocked numbers for up to 60 days.

Unlike other monitoring software, Blacklist starts automatically with your phone. The only downside of the application that we found was that it did not display an alert every time it blocked a number, so you'd never know until you checked the logs.

Platform: Symbian S60
Buy from: http://tinyurl.com/33kd33
Price: $19.95 (Rs 785)

Handy Zip

E-mail attachments are normally sent as zipped files, and unfortunately, there are very few phones that natively support zipped files. Every mobile professional who checks e-mail on the phone dreads these, but if you have Handy Zip, you'll be fine.

Now easily access and even create Zip archives on your mobile—with Handy Zip!

This little application allows you to access and create zipped archives on the phone. When you start the application, it searches for any zipped archives on the phone and displays them. Just click on the relevant archive to go into it. When you want to create an archive, go to `Select > New Archive`. Then, browse to the file or folder you want to archive and select it.

The application allows you to choose between five levels of compression—from None to Maximum. You can also choose to archive sub-folders and sort archives by name or size in ascending or descending order.

Platform: Symbian S60
Buy from: http://tinyurl.com/38ptue
Price: $12.95 (Rs 510) ■

asfaq_tapia@thinkdigit.com

BIG BYTE

Flash is bigger, faster, and cheaper than ever before. Ride the wave at its cusp—you've got 34 of them to choose from

Shrikrishna Patkar

Nothing is permanent but change.

—Heraclitus

Michael Browne

While nobody will dispute the accuracy of the above statement it's equally true that storage hasn't followed this trend in recent years. Sure we've had bigger, faster hard drives, and even greater capacities on optical media, as parallel recording gave way to perpendicular recording and CDs gave way to DVDs and dual-layer DVDs.

Flash memory has always been considered a dark horse. It promised to be a great ride for pioneers of the technology, but the risks were equally big. Every technology needs a catalyst to speed up its development into a mature product. Flash has two things working in its favour now—the need for a dependable portable medium to carry data, and the fact that magnetic recording (HDDs) have come close to their limits both as far as speed and capacity go.

Today, examples of Flash storage can be seen from the solid-state hard drives that have begun to appear in laptops to the humble subjects in this test. Greater size and speed in addition to the ever diminishing price makes flash drives perhaps one of the best buys this year. We were shocked when the prices of 4 GB flash memory plummeted to around Rs 1,500—just a year ago the prices were more than double that. Higher capacities (16 GB and above) are still pricey enough to intimidate all but the most persistent buyer, but that's sure to change, just wait and watch. Perhaps more surprising was the increments in speed of read / write operations—sadly, we don't get to take coffee breaks between tests any more.

We scoured the market and chose 34 drives from amongst the masses—each contender was chosen on the basis of it offering something unique—whether in terms of value, or performance, or appeal.

MoserBaer 1 GB
Small n fast!

SKINNY BYTES—1 GB

Features

Out of the five drives we tested in this section, we really liked the rugged build of the Corsair Voyager 1 GB. Built with a high-quality rubber / silicone compound, the Voyager easily resists damage when dropped. Despite the soft body, it doesn't feel flimsy to hold or use. Transcend's JetFlash 168 was another beauty. One side of the surface has a silver metallic sticker with beautiful embossing. The quality of the plastic used is good. Other than the Moser Baer 1 GB—which had a swivel type design and a quality metal outer sheath—the other two drives were pretty ordinary.

Corsair had some sort of a security application installed on each of their Voyager series drives—but this didn't prove to be really secure—a format removed the application entirely! Not good for someone who wants to protect data.

Performance

The Moser Baer 1 GB proved to be speedy overall. Although the Transcend JetFlash 168 shocked us in the 100 MB assorted file test with 4.11 MBps—an unheard of speed for a random write operation—so much so that we ran the benchmark again to be sure. In fact these two fought it out fiercely, but Moser Baer's offering won the race in the end.

How We Tested

We used Windows XP Professional with SP2. All testing was done on a secondary partition to avoid hard drive bottlenecks. We turned off functions like System Restore, and also kept a permanent swap file on a separate 1.5 GB primary partition.

Test Machine Specification

Processor	Pentium 4 520 (3.2 GHz)
Motherboard	Gigabyte P965 DQ6
RAM	Kingston DDR2 800 MHz 512x2
HDD	Hitachi T7K 250GB SATA 2
Graphics Card	NVIDIA GeForce 7600GS

Features:

- Points were awarded for security features (encryption, password locking etc), we even tested the security feature (if present) to ascertain its strength
- Software features include any firmware on the drive and the bundle. We awarded extra points for backup and recovery and sync suites bundled
- An LED is a must to know when a read/write operation is being performed
- Accessories being the life breath of any personal device were awarded points for simply being part of the bundle. We looked for extras like belt chains and hooks, lanyard rings, and neck straps
- Other features included something noteworthy in a particular product that made it unique

Performance:

- HD Tach tests and reports on five parameters. We've listed all five but only taken three (the read/write scores) into contention for our calculations.
- SiSoft Sandra 2007 tests the read / write performance of a flash drive. We gave more bias to the write scores.
- Our file transfer tests consisted of two parts—one was a 100 MB file transfer test, the other was a maximum size transfer test. We ran both sequential (one large file) and random (lots of different files of varying size) tests.

The Transcend JetFlash V30 turned out to be the proverbial tortoise, as did the Corsair Voyager 1GB, while the Toshiba 1 GB neatly separated these two from the hares.

Conclusion

A 1 GB drive is only recommended when you absolutely cannot afford to spend any more. We say this because two and four GB drives are faster—larger density flash modules tend to have better data transfer rates—and offer more value for money. If you are specifically shopping for a 1 GB drive our Digit Best Buy Gold winner—the Moser Baer 1 GB—is your best bet.

BEST BUY digit JANUARY 2008

Corsair Voyager 2 GB
The most rugged data lugger

SLIGHTLY OVERWEIGHT—2 GB

Features

One glance at Umax's Apus Zoom had us humming Roxette's *She's got the look*—a jet black drive with two silver-chrome strips on each side, it's pretty, but didn't feel sturdy enough. The SanDisk Cruzer Titanium was another attraction—solid metal body (as the name suggests) and a dark gun-grey colour. The regular Cruzer drive is identical looking except that the material used is high quality plastic rather than metal. Corsair's rugged Voyager series made another appearance with in 2 GB avatar. Buffalo's Turbo USB 2.0 is a cool looking transparent drive—though there's nothing in terms of moving parts to make any sense of the transparency. It's a pity that Buffalo didn't add an activity LED.

We also had a bulky Kingston DataTraveler Reader which cunningly incorporates a memory card reader into the regular pen drive. This is a good option if you need both a USB drive and a memory card reader. It's not built very well though. Transcend's JetFlash V10, on the other hand, is built solidly, but is uninspiring to look at.

Buffalo's 2GB offering uses a technology called Turbo USB, which requires a small download from their Web site. This software once installed on the PC claims to help speed up transfers and seems to be some sort of buffering software. Another software called Buffalo Secure Lock Ware which is a security package can be downloaded and installed. We couldn't see the reason why such software couldn't be bundled on a disk, or in the drive itself. They are still "bundled software" if you think about it, and all Buffalo's drives feature them.

Performance

Corsair's Voyager 2 GB did a complete turnaround of our initial impressions with the 1 GB model—it was fast, so much so that it nearly overtook the speed demon that was the Transcend JetFlash V10. Both the SanDisk drives just tagged behind the leaders and strangely did very well with large write operations involving multiple small files—better than the two overall leaders. Funnily the scenario changes when we look at the small 100 MB file transfer tests, where the Cruzers lag behind, although by a small margin.

The Moser Baer 2 GB was a ubiquitous performer—fast, but amid faster drives, unlike its smaller sibling. The attractive Kingston DataTraveler 2 GB was abysmally slow.

Conclusion

Whether you're looking at speed or something tough enough to withstand a few drops from your pocket look no further than our Digit Best Buy Gold winner—Corsair's Voyager 2 GB. It even comes with an attractive transparent USB extension cable so you won't have to get dusty fiddling around the rear of your cabinet if you don't have front USB ports. Best of all, it costs a measly Rs 900!

The SanDisk U3-based brothers, the Cruzer Titanium and the Cruzer, also make very good buys for someone wanting a fast drive. These make sense, because if you're planning on transferring close to 2 GB of data regularly, it's pointless to choose something slow. Transcend's JetFlash V10 2 GB (Rs 800) was also fast, similar to the V10 1 GB in the previous group.

Transcend clearly uses much faster Flash chips in their V10 series as compared to their V30 series—which seem the slowest of the Transcend drives. In fact the Transcend JetFlash V30 is such a slowcoach that only one drive in this category was slower—this dubious honour belonging to the Umax Apus Zoom 2 GB—unless you plan quick naps between large write operations you'll stay well away. Toshiba's U3 offering was also well below the standard of what is considered fast—and if you want a U3 based drive we can't recommend this after the brilliant SanDisk Cruzers.

CERTIFIED FAT—4 GB

Features

The 4 GB segment is where all the fun starts, mainly because just six months ago these drives were double the price they are today. There is also a lot more data you can carry around—photos, movies, and music. The math is simple too—double the price of a 2 GB gives you double the storage space.

The Blue Whale—Corsair Voyager 16 GB

The only really *large* drive we were able to get our hands on was a Corsair Voyager featuring a massive 16 GB. Although their catalogue shows that the 32 GB variant is a market reality, availability is a different story. This drive features the same ruggedness that the Voyager series are famous for, and shares even the same colour. In fact, if not for the tiny 16 GB imprint on the translucent rubber that covers the activity LED, you wouldn't be able to tell it apart from their other versions—it looks just like the 2 GB version shown above.

It was a pity to see such a large drive thrashed in our random write tests, though. Although this particular test brings most drives to their knees, we were hoping for a different result here. Alas, with assorted write speeds of 1 and 2.35 MBps the Voyager 16 GB isn't as fast as its target audience would want it to be. If you want a 16 GB drive, you're probably a movie buff or an enthusiast, looking to transport dual-layer ISOs or rather large games on this drive, which might end up being a painful wait.

Overall, this drive is a benchmark for the size we'd like to see become *de facto* next year. But there's not much going for the Voyager besides its size and of course its price—Rs 6,990. Imagine lugging your MP3s to office and back. Got a bigger music collection than that? Wait for the 32 GB version, and pray that it's much faster.

One drive stands out in this category—the Sandisk Extreme Ducati Edition. The D word causes the motorcycling enthusiasts amongst us to get weak-kneed and dry mouthed with anticipation. This drive features a solid metal upper body (painted Ducati-red) with a quality plastic bottom. The USB interface safely tucks away and the LED indicator is made to look like the tail-light of a super bike. The drive also features SanDisk's famous Extreme Flash memory, which obviously made us want to test it first.

Also in this category were Kingston's Data Traveler Mini and Data Traveler Mini Fun are really tiny drives. The Traveler Mini has a very neat retracting system which completely tucks away the USB interface beneath its tiny exterior. The Mini Fun is designed to look funky—and is a bright red. Note that besides their diminutive size these are full fledged USB drives—Kingston hasn't cut corners on functionality.

Toshiba's TransMemory 4 GB has one of the curviest forms—straight body curved inwards at either end. A very attractive dark grey plastic body does justice to a beautiful footprint.

Tech-Com's 4 GB offering came with DiskPro on the firmware. This software appears as a discrete floppy drive. Double clicking this drive will bring up a screen that will query for a password to protect access to the drive. You can also set a hint question. What's best about this is that the drive cannot be formatted without providing the password (a contrast to the poor security suite on the Corsair Voyager drives). Tech-Com also provided good accessories—a long USB extension cable and a neat lanyard.

Performance

Ducatis are known for their performance, aren't they? True to its heritage, the SanDisk Extreme Ducati Edition blows everything in this comparison to smithereens—it was puzzingly slow in the 100 MB assorted write, though still faster than the other drives and that was it—no more complaints! With a random write speed of 13.34 MBps for 4 GB of assorted files and an equally amazing 18.06 MBps for sequential write, this drive is two and sometimes three times faster than most other drives.

The only other two contenders barely close enough to choke on the exhaust fumes of the SanDisk Extreme Ducati Edition, were the JetFlash V10 4 GB from Transcend and the Corsair Voyager 4 GB. The stragglers consisted of the Imation Nano 4 GB, the Tech-Com 4 GB, Toshiba TransMemory 4 GB, and the Kingston Data Traveler 100.

Conclusion

If our hearts ruled our heads we'd award the SanDisk Extreme Ducati Edition with gold and forget about this category. However its not the wisest choice and not everyone will want to spend three times more for double the speed. That established, Digit's Best Buy Gold goes to

BEST BUY digit JANUARY 2008

Transcend JetFlash V10 4 GB
When performance and price collide

Scoreboard

1 GB

BRAND MODEL	Corsair Voyager 1 GB	Moser Baer 1 GB	Toshiba 1 GB	Transcend JetFlash V30 1 GB	Transcend JetFlash 168
Price (Exclusive Of Taxes)	550	480	470	550	700
Comments	+ Rugged – Slow performer	+ Fast, looks good – None in particular	+ Attractive Looker – Mediocre performer	+ Attractive – Very Slow	+ Attractive, reasonably fast – None in particular
Grand Totals (Out Of 100)	40.00	42.75	37.66	29.21	41.28
Features	**20.86**	**13.09**	**13.44**	**15.26**	**14.77**
Performance	**19.14**	**29.66**	**24.22**	**13.95**	**26.51**
Features					
Storage Capacity (Claimed)	1 GB	1 GB	1 GB	1 GB	1 GB
Storage Capacity (Actual)	967 MB	960 MB	960 MB	969 MB	998 MB
Security	NA	N	N	N	N
Software Features	6	0	0	0	5
Visual Indicators (LED, etc.)	Y	N	N	Y	N
Other Accessories Provided	USB Extension cable	NA	NA	lanyard cable	lanyard cable
Other Features		NA	NA	NA	NA
Build Quality (Scale Of 10)					
Quality Of Materials Used	7.5	6.5	6.5	5.5	6
Sturdiness Of The Overall Package	7.75	6.5	6.5	5.5	6.5
Cap Locking Mechanism	7	7	7.5	7	6
Performance					
HD-Tach 3 (8 MB Write Tests)					
Random Access Time	0.9 ms	0.5 ms	0.4 ms	0.6 ms	8.7 ms
Average Read Speed	16.7 MBps	28.5	18.7	18.2	12.4
Average Write Speed	7.35 MBps	4.6	7.5	6.8	8.6
Read Burst Speed	17 MBps	23.6	18.8	19.2	14.4
CPU Utilisation (%)	0	0.04	0.05	0.03	0
SiSoft Sandra 2007 (64MB File Test)					
Read	16.38 MBps	18.53	17.47	18.23	14.19
Write	4.36 MBps	4.63	7.46	4.53	6.47
File Transfer Test					
Write–100 MB (Sequential)	4.19 MBps	7.57	7.88	5.75	8.23
Read–100 MB (Sequential)	16.19 MBps	26.74	20.41	10.83	13.62
Write–100 MB (Assorted)	0.78 MBps	1.08	0.93	0.29	4.11
Read–100 MB (Assorted)	13.71 MBps	13.19	14.95	8.89	14.58
Write–1 GB (Sequential)	4.15 MBps	6.23	7.85	1.44	8.40
Read–1 GB (Sequential)	14.93 MBps	33.68	13.24	5.00	12.73
Write–1 GB (Assorted Files)	2.71 MBps	6.21	4.07	1.25	5.25
Read–1 GB (Assorted Files)	11.84 MBps	28.04	16.18	3.73	13.74

2 GB

BRAND MODEL	Buffalo Turbo USB 2GB	Corsair Voyager 2 GB	Kingston DataTraveler	Kingston DataTraveler Reader 2GB	Moser Baer 2 GB	SanDisk Cruzer Titanium U3 2GB
Price (Exclusive Of Taxes)	970	900	2850	2500	735	1590
Comments	+ Looks good – Turbo mode not effective	+ Rugged and Fast – None in particular	+ Well built – Very slow	+ Feature Rich – Slow	+ Fast performer – Flimsy design	+ Extremely Well Built – Heavy
Grand Totals (Out Of 100)	37.30	51.77	27.72	33.16	41.65	50.56
Features	**13.09**	**20.86**	**12.25**	**13.65**	**13.09**	**24.71**
Performance	**24.21**	**30.91**	**15.47**	**19.51**	**28.56**	**25.85**
Features						
Storage Capacity (Claimed)	2 GB	2 GB	2 GB	2 GB	2 GB	2 GB
Storage Capacity (Actual)	1.88 GB	1.88 GB	1.86 GB	1.95 GB	1.88 GB	1.9 GB
Security	N	N	NA	NA	N	Y
Software Features	0	6	0	0	0	8
Visual Indicators (LED, etc.)	N	Y	N	N	N	Y
Other Accessories Provided	NA	USB Extension cable	NA	NA	NA	NA
Other Features	NA		NA	Card Reader	NA	NA
Build Quality (Scale Of 10)						
Quality Of Materials Used	6.5	7.5	6	6	6.5	8
Sturdiness Of The Overall Package	6.5	7.75	6.25	6.5	6.5	7.5
Cap Locking Mechanism	7	7	6.5	6.5	7	6.5
Performance						
HD-Tach 3 (8 MB Write Tests)						
Random Access Time	0.6 ms	0.9 ms	1 ms	0.7 ms	0.5 ms	0.4 ms
Average Read Speed	21.2	29.6	12.8	12.6	30.4	20.6
Average Write Speed	6.1	11.2	6.5	7.6	4.5	8.4
Read Burst Speed	22.3	31	13.7	12.9	25	21
CPU Utilisation (%)	0.06	0	0	0.04	0.03	0.09
SiSoft Sandra 2007 (64MB File Test)						
Read	21.36	29.49	11.12	13.84	18.56	19.12
Write	4.61	6.55	5.73	6.84	4.36	7.33
File Transfer Test						
Write–100 MB (Sequential)	4.28	7.76	4.29	6.46	4.02	7.26
Read–100 MB (Sequential)	47.17	31.15	10.09	12.79	19.19	19.61
Write–100 MB (Assorted)	0.74	1.11	0.30	0.61	0.62	1.50
Read–100 MB (Assorted)	13.23	12.99	7.45	11.68	10.66	8.75
Write–1 GB (Sequential)	4.24	7.51	5.90	6.18	7.05	7.60
Read–1 GB (Sequential)	19.61	27.68	13.78	12.43	37.48	18.57
Write–1 GB (Assorted Files)	3.30	4.03	2.08	4.19	6.34	6.30
Read–1 GB (Assorted Files)	17.50	21.49	9.29	11.58	30.36	16.61

Flash Forward

We've seen flash emerging from a niche product to something that is properly mainstream. But as of now this applies to thumb drives only. On the bigger scene flash memory has pervaded more than just your pocket. It has seen usage as a storage medium, particularly in notebooks, where power consumption is a necessary evil. The fact that flash has no moving parts and consumes a fraction of the power of its magnetic siblings, is an attractive enough reason for vendors to use it, despite the fact that anything more than 16 GB of flash is very expensive.

As the drive for convergence leads to better PDAs, multimedia phones, PMPs and their ilk, with more features and customisability, the demand for storage as a medium will increase by leaps and bounds. Flash has been waiting in the wings for a while now—a nascent period that saw a growth of no more than 10 per cent.

We're still going to prefer 500 GB hard drives for awhile, and it'll take some time for extremely high density flash modules to enter the consumer space. However, when it comes to portable storage, the invasion of *flash* has already begun...

Trancend's JetFlash V10 4 GB. An excellent product—its fast, reasonably rugged and a steal at just Rs 1,600. The only other worthy alternative is the Corsair Voyager 4 GB (Rs 1,550). It's the third-fastest drive in the comparison and has a decent bundle (similar to the other Voyager drives).

Once again, Toshiba's much acclaimed TransMemory drives failed to impress. We were surprised at the lacklustre performance of the Buffalo 4 GB drive and even with Turbo USB enabled we didn't notice a big improvement. In fact this was the case in the 2GB category as well, sure a difference of 2-3 percent with Turbo USB enabled may seem significant, but its not a big deal and not really noticeable in reality—more over its a far cry from the claimed 16 percent performance hike.

OBESE INDULGENCES—8 GB

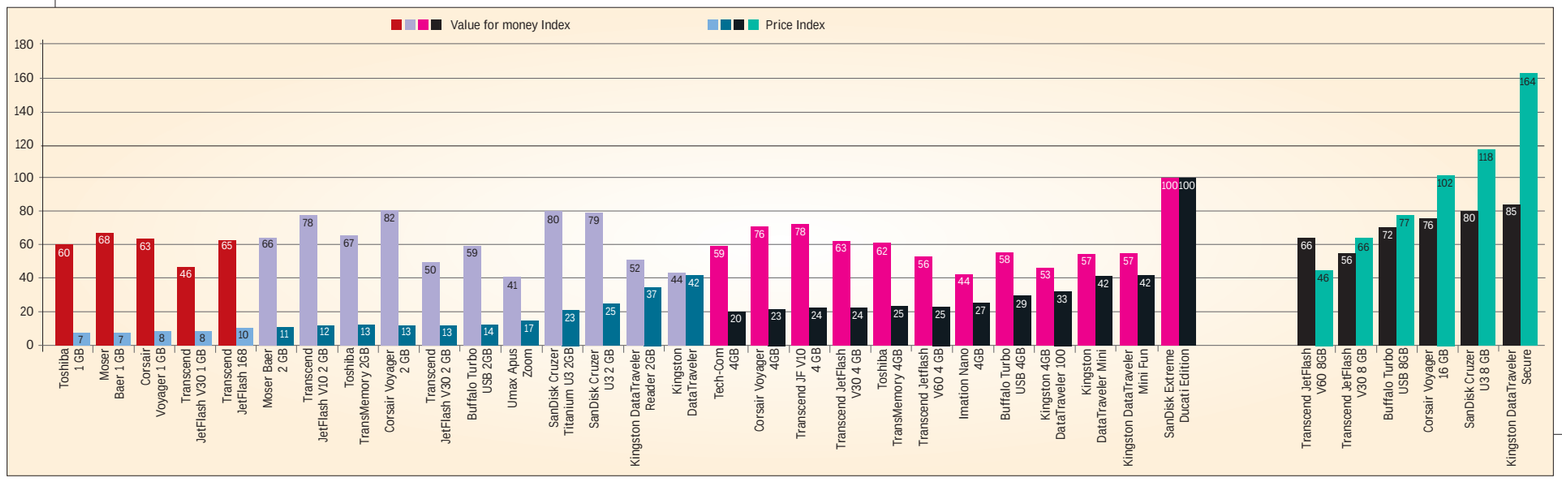
Features

With the ability to store 8 gigabytes of data, you can actually extract entire DVDs to such drives. Kingston's DataTraveler Secure was a hulk of a drive—heavy, and claimed to be waterproof (up to four feet under-water); something we didn't test. Buffalo's Turbo USB was identical to the other Buffalo drives, and that's a good thing. The 8 GB Cruzer from SanDisk was built identically to the other Cruzer drives—exemplary. The other attractive looking drive was the Transcend JetFlash V30 which used a shiny black, translucent body to convey all the appeal it needed to. It's rather compact too, and was the smallest of the 8 GB drives.

Transcend V60 8 GB
One stop data shop!

Digital Tools I **Flash Drive Test**

	2 GB					4 GB					
BRAND MODEL	**SanDisk Cruzer U3 2 GB**	**Toshiba TransMemory 2GB**	**Transcend JetFlash V30 2 GB**	**Transcend JetFlash V10 2 GB**	**Umax Apus Zoom**	**Buffalo Turbo USB 4GB**	**Corsair Voyager 4GB**	**Imation Nano 4GB**	**Kingston 4GB DataTraveler 100**	**Kingston DataTraveler Mini**	**Kingston DataTraveler Mini Fun**
Price (Exclusive Of taxes)	1690	860	900	800	1138	2,000	1,550	1,800	2,272	2,850	2,850
Comments	+ Well built − None in particular	+ Attractive looks − Very Slow	+ Compact, good looks − Slow	+ Fast, well built − Bland looks	+ Great Looks − Very Slow	+ Attractive looks − Turbo USB over hyped	+ Rugged, fast − None in particular	+ Cute looking − Slow	+ Good build quality − Slow performer	+ Very Compact − USB Mechanism tacky	+ Cute looking, compact − Mediocre build quality
Grand Totals (Out Of 100)	49.94	42.10	31.81	49.39	25.96	36.90	47.96	27.93	33.56	36.29	35.82
Features	23.73	24.08	15.26	17.01	13.51	13.09	20.86	11.20	15.72	12.74	12.39
Performance	26.21	18.02	16.55	32.38	12.45	23.81	27.10	16.73	17.84	23.55	23.43
Features											
Storage Capacity (Claimed)	2 GB	2 GB	2 GB	2 GB	2 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
Storage Capacity (Actual)	1.9 GB	1.85 GB	1.9 GB	998 MB	1.9 GB	3.74 GB	3.78 GB	3.82 GB	3.84 GB	3.84 GB	3.84 GB
Security	Y	Y	N	N	N	NA	NA	NA	NA	NA	NA
Software Features	8	8	0	5	0	0	6	0	0	0	0
Visual Indicators (LED, etc.)	Y	Y	Y	Y	N	N	Y	N	Y	N	N
Other Accessories Provided	NA	NA	lanyard cable	lanyard cable	Lanyard ring	NA	USB Extension cable	NA	NA	NA	NA
Other Features	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA
Build Quality (So 10)											
Quality Of Materials used	7	6.5	5.5	5	7	6.5	7.5	5	6.25	6.5	6
Sturdiness Of The Overall Package	7	7	5.5	5.5	6.75	6.5	7.75	5	6.5	6.5	6.5
Cap Locking Mechanism	6.5	7.5	7	7	6	7	7	7	7	6.5	6.5
Performance											
HD-Tach 3 (8 MB Write Tests)											
Random Access Time	0.5 ms	4.3 ms	0.6 ms	1.1 ms	0.8 ms	0.6 ms	0.7 ms	11.8 ms	1.8 ms	0 ms	1 ms
Average Read Speed	20.5	13.2	18.8	27.6	19.65	20.8	22.2	11.3	13.9	20.6	20.6
Average Write Speed	8.3	4.3	7.1	10.2	4.23	5.4	11	4.8	5.5	6.7	6.6
Read Burst Speed	21.4	13.9	20.2	29.5	21.43	21.3	22.8	11.8	14	21.4	21.4
CPU Utilisation (%)	0.06	0	0.02	0.06	0.05	0.07	0	0.04	0.04	0.1	0.1
SiSoft Sandra 2007 (64MB File Test)											
Read	19.24	12.32	18.56	29.35	17.24	20.75	21.85	9.8	13.1	19.5	19.3
Write	7.72	3.42	4.39	7.72	4.26	4.36	7.64	5.4	4.3	6.17	6.36
File Transfer Test											
Write–100 MB (Sequential)	7.74	4.79	5.76	9.16	1.81	4.32	7.56	5.37	3.92	5.79	5.73
Read–100 MB (Sequential)	20.28	14.31	10.96	30.86	2.16	49.02	24.69	11.21	15.92	26.11	20.33
Write–100 MB (Assorted)	1.53	0.79	0.31	1.57	0.46	0.75	1.00	0.87	0.96	0.59	0.66
Read–100 MB (Assorted)	8.90	18.05	9.79	12.11	1.28	12.63	12.69	11.06	13.07	12.92	13.05
Write–1 GB (Sequential)	7.75	3.80	2.97	7.80	4.37	4.20	7.41	4.98	3.96	5.88	5.88
Read–1 GB (Sequential)	18.21	12.27	10.12	27.34	8.30	19.71	20.75	10.96	12.75	19.53	19.86
Write–1 GB (Assorted Files)	6.37	3.24	2.37	5.27	2.40	3.25	4.36	3.52	2.94	3.88	3.85
Read–1 GB (Assorted Files)	16.59	11.08	7.13	23.52	3.15	17.18	18.40	10.30	12.32	16.34	17.35



The Data Traveler Secure has full 256-bit AES (Rijndael) encryption. This makes the Secure the perfect choice for someone who's really serious about data protection. Not only can you limit access to the data on the drive but any data placed in the secure folder automatically gets encrypted.

SanDisk's Cruzer also allows password encryption, which is standard with the U3 interface—and we'd like U3 if it wasn't for the annoying pop-ups, in fact all U3 based drives are reasonably secure—something of a plus—but the interface leaves a lot to be desired.

Performance

With absolutely nothing to choose from between the speeds of the Buffalo and Kingston drives we knew we had our two performance winners nailed down. The Kingston drive does better at assorted writes—worth remembering if you intend to copy lots to files to the drive. If your need patterns dictate a lot of reading from the USB drive then the Buffalo would be better. The Transcend JetFlash V60 is the nearest competitor to these two speed demons, but still loses by a small margin. Transcend's own JetFlash V30 brings up the rear.

Conclusion

If you are a security nut, and more concerned about who's viewing your personal stuff then go with the Kingston DataTraveler Secure—no more worries except the price: Rs 11,111. If that's a little too much to cough up, you should look at the U3-based SanDisk Cruzer—for Rs 7,990, you get decent speed, and great build quality. You'll also get security as all the Cruzer drives come with the U3 inter-

			4 GB				8 GB					
BRAND MODEL	**SanDisk Extreme Ducati Edition**	**Tech-Com 4GB**	**Toshiba TransMemory 4GB**	**Transcend JF V10 4 GB**	**Transcend JetFlash V30 4 GB**	**Transcend Jetflash V60 4 GB**	**Buffalo Turbo USB 8GB**	**Kingston DataTraveler Secure**	**SanDisk Cruzer U3 8 GB**	**Transcend JetFlash V60 8GB**	**Transcend JetFlash V30 8 GB**	**Corsair Voyager 16 GB**
Price (Exclusive Of Taxes)	6,790	1,350	1,680	1,600	1,600	1,700	5,220	11,111	7,990	3,100	4,500	6,950
Comments	+ Fast, gorgeous looker – Costly extravagence	+ Decent security features – Slow	+ Secure U3 interface – Very Slow	+ Speedy performer – Lack-lustre design	+ Attractive Looker – Mediocre performer	+ Well built – Slow performer	+ Looks Good, Fast – Costly	+ Great Security features – Very Expensive	+ Solidly built – None in particular	+ Great value for money – None in particular	+ Looks cool – Slow	+ Rugged, lots of space – Slightly slow
Grand Totals (Out Of 100)	63.28	37.19	39.11	49.12	39.91	35.41	45.42	53.47	50.60	42.08	35.71	48.05
Features	**19.43**	**20.62**	**24.08**	**17.01**	**15.26**	**14.49**	**13.09**	**21.25**	**23.73**	**14.49**	**15.26**	**20.86**
Performance	**43.85**	**16.58**	**15.03**	**32.11**	**24.65**	**20.92**	**32.33**	**32.23**	**26.87**	**27.59**	**20.45**	**27.19**
Features												
Storage Capacity (Claimed)	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	8 GB	8 GB	48 GB	8 GB	8 GB	16 GB
Storage Capacity (Actual)	3.8 GB	3.83 GB	3.72 GB	3.81 GB	3.8 GB	3.8 GB	7.49 GB	7.6 GB	7.63	7.65 GB	7.61 GB	15.1 GB
Security	NA	USB Disk Pro (Software)	Y	N	N	N	NA	Y (256 bit AES Enctyption)	Y	N	N	NA
Software Features	0	5	8	5	0	5	0	6	8	5	0	6
Visual Indicators (LED, etc.)	Y	N	Y	Y	Y	N	N	N	Y	N	Y	Y
Other Accessories Provided	Neckstring	USB extension cable, lanyard	NA	lanyard cable	lanyard cable	lanyard cable	NA	NA	NA	lanyard cable	lanyard cable	USB Extension cable
Other Features	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Build Quality (Scale Of 10)												
Quality Of Materials Used	8.5	6	6.5	5	5.5	6	6.5	8	7	6	5.5	7.5
Sturdiness Of The Overall Package	8.25	6	7	5.5	5.5	6	6.5	7.5	7	6	5.5	7.75
Cap Locking Mechanism	7.75	7.25	7.5	7	7	6	7	6.75	6.5	6	7	7
Performance												
HD-Tach 3 (8 MB Write Tests)												
Random Access Time	0.6 ms	2.7 ms	4.5 ms	1.1 ms	0.6 ms	0.7 ms	1.5 ms	0.5 ms	0.7 ms	0.6 ms	0.7 ms	2.8 ms
Average Read Speed	26.1	11	13.7	29	18.7	13	30.7	24.9	27	21.9	14.5	33.6
Average Write Speed	17.8	5.1	4.5	10	6.8	8	12	10.8	8.2	9.6	8.4	12.35
Read Burst Speed	26.9	11.2	13.9	29.2	19.4	13.3	32.8	26.2	30.9	22.8	15.9	35
CPU Utilisation (%)	0.06	0.03	0	0.07	0.04	0.05	0.1	0.06	0	0.02	2 5	0
SiSoft Sandra 2007 (64MB File Test)												
Read	24.82	12.3	12.01	29.49	16.81	14.19	27.83	23.42	24.64	21.1	13.24	33.86
Write	16.48	4	3.27	7.64	5.63	6.55	10.53	9.4	7.25	8.83	7.35	6.55
File Transfer Test												
Write–100 MB (Sequential)	18.25	5.13	3.82	8.42	5.65	6.50	7.95	7.51	6.92	8.13	6.67	8.10
Read–100 MB (Sequential)	27.93	10.66	11.83	28.99	37.31	13.44	33.00	25.51	17.54	23.98	15.22	37.74
Write–100 MB (Assorted)	1.93	0.93	0.64	1.50	1.45	1.48	1.01	2.68	1.69	1.09	1.35	1.00
Read–100 MB (Assorted)	13.62	10.91	7.88	11.45	11.92	11.90	9.80	10.56	8.26	9.89	9.51	9.61
Write–1 GB (Sequential)	18.06	5.25	3.23	8.15	4.55	6.40	7.74	9.47	7.32	10.05	5.98	3.93
Read–1 GB (Sequential)	23.93	10.37	12.77	28.32	24.73	12.70	29.12	23.32	17.59	21.78	14.74	15.57
Write–1 GB (Assorted Files)	13.34	3.49	2.75	5.32	3.87	4.24	4.72	6.85	5.09	4.20	2.69	2.35
Read–1 GB (Assorted Files)	20.21	10.00	11.27	23.16	16.62	11.99	23.60	20.17	17.27	19.29	13.49	12.69

Contact Sheet — **Flash Drive**

Brand	Company	Web site	E-mail
Transcend	Mediaman Infotech Pvt Ltd	www.mediamangroup.com	022-23828100
	Supertron Electronics Ltd		022-23881397 / 1924
Kingston	Kingston Technology India	www.supertronindia.com	NA
SanDisk	Rashi Peripherals Pvt Ltd	www.kingston.com/india	022-67090909
Umax	Neoteric Infomatique Pvt Ltd	www.rptechindia.com	022-39828600
Tech-com	SHREE Sagarmatha Distributors Pvt Ltd	www.neoteric.co.in	011-26428541 / 42
Toshiba	Abacus Peripherals Pvt Ltd	www.techcomindia.com	022-40914600
Corsair	Tirupati Enterprises	www.abacusperipherals.com	9339207519
Buffalo	Buffalo Technology	www.tirupati.net	011-41538059
Moser Baer	Moser Baer India Ltd	www.buffalotech.com	011-40594500
Imation	Imation India Pvt Ltd	www.moserbaer.comwww.imation.co.in	41519880 / 81

face, which has security features in-built.

If you're really looking for something cheap try the Transcend JetFlash V60 8 GB (Rs 3,100). Buffalo's Turbo USB is another decent offering for Rs 5,220, and is a good mix of performance and price. However much we like performance, a mix of value is important. As far as the delicate balance goes, nothing sets a better example than the Transcend JetFlash V60 8GB which shames its V30 brethren by a good margin. Our Best Buy Gold goes to the Transcend JetFlash V60—good for carrying around volumes of data, and you won't really feel the pinch. ■

michael_browne@thinkdigit.com

Bazaar

We test the latest hardware and software products available in the market

Nokia E51

A Classic Reborn

If you are an executive in the market for a suitable cell phone, Nokia's E series offers the best bang for the buck. The Nokia E51 is the latest from the venerable E series, and an apt successor to the hugely popular E50 model, which it will eventually replace. The E51 brings in new features at a price that's hard to beat.

The keypad is completely revised, with dedicated keys for Contacts, Calendar, E-mail and Home. The soft menu keys, however, are too small for comfort. The rest of the keypad is a delight—good tactile feedback, and key spacing is immaculate. The rubberised keys for volume up / down, push-to-talk and power are hard to operate, though.

The E51 feels peppy—it uses the same processor as on the flagship N95. With 130 MB of memory on board, you can do a lot of multitasking without the phone getting sluggish, and the memory can be expanded to 4 GB via the microSD slot (a 512 MB card comes bundled). The E51 runs on Symbian OS Series 60, and crams in lot of features besides the standard set. Most of these will go down well with executives—for example, the Advance call manager lets you manage incoming and outgoing calls efficiently. In addition, WorldMate, an application for frequent fliers, comes bundled.

RATINGS	
Features	★★★★½
Performance	★★★★½
Build Quality	★★★★½
Value for Money	★★★★
Overall	★★★★½

The E51 is a 3G, quad-band phone with HSDPA, Wi-Fi (802.11g), Bluetooth, Micro USB and an infrared port. There's a switch to turn Bluetooth on and off on the main keypad. Multimedia features include a good MP3 player, a 2MP camera with still and video shooting, and FM radio.

Signal reception is good, as is voice clarity. Internet browsing speeds are faster than with the E50 or E61, thanks to the revised Web browser. The camera is above average, but loses performance in low-light conditions. The speakerphone is clear, with little or no echo on the recipient's side. We got around three days of battery life with nominal usage and a terrific seven days of standby time.

The Nokia E51 retails at Rs 14,699; it is, we think, a must-buy.

Specifications

Weight: 100 gm; Dimensions: 114 x 46 x 12 mm; Quad-band; 2MP camera; Video recording; xHTML browser; Push-to-talk; micro USB, infrared.

Contact: **Nokia India Pvt Ltd**
E-mail: **ext-manoj.goel@nokia.com**
Web site: **www.nokia.co.in**
Price: **Rs 14,699**

Creative Zen Stone Plus 2GB

A Pebbleful Of Music!

With Apple launching a whole new range of iPods recently, including the iPod Touch, can Creative afford to be far behind? Not one to be caught shuffling around (pun intended), Creative has launched the Zen Stone Plus series.

With a player so tiny, we'd expected the Zen Stone to felt flimsy, but surprisingly it didn't. There's a small circular blue OLED screen—nothing special—and a Play button surrounded by a circular button that houses four controls—track shuffle and volume up / down. There's a tiny button on the top of the player that has controls for the Menu and play / pause functions.

Available in 2 GB only, the Zen Stone features FM radio and supports up to 32 presets, inbuilt audio recording, and a stopwatch function—not bad for such a small device. Unlike iPods, there are no drivers required to connect it to your PC—just drag and drop, which is a huge relief.

Music quality is a mixed bag with the Stone. Firstly, if you're even remotely interested in good sound, throw away the bundled earplugs. Once we replaced them with our Creative EP630 headphones, everything was so much clearer. Then we tried the Bose Intra Ear—our reference for PMPs—and things seemed even better. Punchy, tight bass, superb vocal tones, and a decent extended high-end makes the Zen Stone very suitable for rock, pop, jazz and reggae. If you listen to lot of classical music, you'll need much better headphones to bring out the recessed highs. Bottom-line: the Zen Stone is only limited by its default earplugs—and most PMPs are.

Don't let this stop you buying it—if you want something tiny, sturdy, and easy to use, the Zen Stone will suit you. If you want good sound, invest in a pair of decent in-ear earplugs.

RATINGS	
Feature	★★★
Performance	★★★★
Build Quality	★★★★
Value for Money	★★★
Overall	★★★½

Specifications

Capacity: 2 GB; Battery life: 9.5 hrs; Display: 64 x 64 blue OLED; Weight: 21 gm; Audio support: MP3, WMA, Audible, WAV

Contact: **IDLDPL**
Phone: **011-46096400**
E-mail: **contactus@idldpl.com**
Web site: **http://in.creative.com**
Price: **Rs 4,399**

CoolerMaster Real Power M1000

Never Run Out Of Juice

CoolerMaster is a big name in the Desktop chassis and PSU market, and there's nothing small about the Real Power M1000, either. CoolerMaster goes modular with this model, which cuts down on cable clutter. A 135 mm fan dominates the underside of the unit and cools well.

With the dedicated circuitry that active PFC features, this PSU is rated at 99 per cent—you can be assured of maximum efficiency of power distribution, a good thing for those high-end PCs with costly components.

We fired up a Core 2 Quad QX6850 on an ASUS P5N32-E SLI and overclocked it to 3.6 GHz, powered the 2 GB of 1066 MHz memory at 2.2 V, two 8800GTX in SLI, two WD Raptors in RAID 0 plus a third 500 GB hard drive, and an X-Fi Elite Pro along with a couple of DVD-Writers.

The M1000 handled everything with no fuss—it remained cool to the touch, supplying 3.31 V to the 3.3 V rail, 4.97 V to the 5 V line and 11.987 V to the 12 V line—perfectly acceptable and well within the boundaries of what's considered really good.

If you're looking for power for the kind of PC that gets geeks drooling, you should know that such power supplies don't come cheap! But if the safety of your components matters and you can shell out Rs 15,600, then you can't get anything better.

RATINGS	
Features	★★★★
Performance	★★★★½
Build Quality	★★★½
Value for Money	★★★½
Overall	★★★★

Specifications

Power (continuous): 1000 watts; Efficiency: >85%; Input voltage 90-264V (auto); Peak power to each rail: 3.3V: 40 amps, 5V: 40 amps, combined 12V rails: 110 amps

Contact: **CoolerMaster Co. Ltd.**
Phone: **+91-9833870302**
E-mail: **tanmay_l@coolermaster.com**
Web site: **www.coolermaster.com**
Price: **Rs 15,600**

ASUS Maximus Formula

CrossFire Compadre

This one comes as an overclocker's delight. The ASUS Maximus Formula is based on Intel's new X38 chipset, sporting an ICH9R Southbridge. This is a limited edition, and features hand-picked components for extreme overclockability.

There is support for Penryn and 1600 MHz FSB, and dual x16 slots that officially support CrossFire. Incidentally, the PCI-E slots support the new PCI-E 2.0 standard too—more future-proofing for you. ASUS drops in their fusion block system as well—basically a heat-pipe solution that integrates a water block on the Northbridge chipset for proper cooling. The entire board has a very intricate heat-pipe system that remained cool no matter how hard we thrashed it.

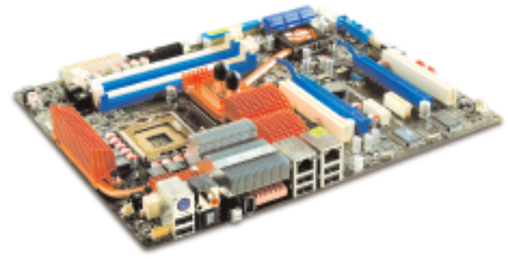
Some nifty little additions will appeal to overclockers: the CMOS, Power and Reset buttons, and colour-coded LEDs on the PCB that will display the status (whether overvolted or not) of components including CPU, memory, Northbridge, and FSB. There's also an inbuilt sensor that will warn you if GPU temperatures exceed a set threshold—a boon for users with the latest thermal monsters from NVIDIA and ATI. ASUS has also incorporated a 2-phase memory voltage termination for better voltage regulation even while overclocking—this should filter noise and RF interference for better performance under stress. The BIOS is full of overclocking options and tweaks—newbies and enthusiasts alike will feel at home.

The Maximus Formula SE also has a more-than-sufficient number of SATA, and USB ports.

With a PC Mark 2005 score of 10,572, the Maximus Formula isn't bottlenecking the QX6850 (3.0 GHz) in any way. With a graphics score of 18,299 in 3D Mark 2005 (using an 8800GTX), this board is definitely free of the early hiccups that plague most platforms. We did get our E6550 (2.33 GHz) to run along happily at 3.15 GHz (the FSB being overclocked from a default 333 MHz to 450 MHz)—a very good result.

Rs 16,800 may seem high, but it's plenty of board for that much. ASUS includes a rich bundle too. Highly recommended for those looking at a high-end, stable platform in general, or CrossFire in particular.

RATINGS	
Features	★★★★½
Performance	★★★★
Bundle	★★★★
Value for Money	★★★½
Overall	★★★★



Specifications

Intel X38 chipset; ICH9R Southbridge; DDR2 1200 MHz and 1600 MHz FSB support; 6 x rear USB ports; 6 x SATA 2.0 ports

Contact: **Asustek Computer Inc**
Phone: **022-67668800**
E-mail: **media_india@asus.com**
Web site: **http://in.asus.com**
Price: **Rs 16,800**

Pinnacle Studio Ultimate Events Pro Deluxe 11

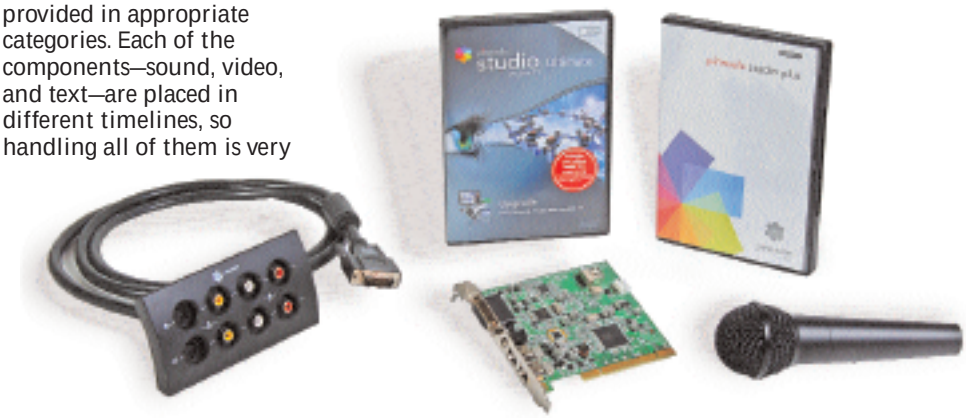
Your Own Personal Video Studio

Good camcorders and digital cameras at reasonable prices are common these days, and that means that budding film and art students are on the lookout for good video compiling and editing software to go with them. Pinnacle comes into the picture here with Pinnacle Studio Ultimate Events Pro Deluxe 11.

The package is huge, and comes with a PCI FireWire expansion card for your PC. There's also a chroma cloth to make keying and mask creation a lot easier. The installation is fairly simple—first install Studio Plus and then the upgrade to Ultimate.

The Ultimate version gives you three main plugins—proDAD Vitascene, BIAS SoundSoap and StageTools MovingPicture. It also gives you the ability to work with 5.1 audio streams.

The bundle features a huge collection of transition effects for scenes, and there are also loads of sounds provided in appropriate categories. Each of the components—sound, video, and text—are placed in different timelines, so handling all of them is very simple. There's support for online video hosts like Yahoo! Video and Studio Online.



The package comes with a fat, highly-detailed user manual, which even has tips on how to get your hard drive prepared for the large amounts of data required during video editing by tweaking and optimising transfer rates.

RATINGS	
Features	★★★★
Performance	★★★½
Ease of Use	★★★★
Value for Money	★★★½
Overall	★★★½

At first, Pinnacle Studio Pro Deluxe 11 seems like a very sophisticated package, but its abundance of features is presented in a very friendly interface—you don't have to be a trained professional to use them. At Rs 17,900 for the internal PCI package, the decision to buy it is a little difficult, but if you're a student getting into the film industry or running a small business, it's a must-have.

Specifications

Included in Ultimate: BIAS SoundSoap, proDAD VitaScene, StageTools MovingPicture; Supports Dolby 5.1 encoding and HD video; Package contents: Green Screen, microphone, PCI FireWire interface card, manual

Contact: **Pinnacle Systems**
Phone: **9811904809**
E-mail: **adey.extern@pinnaclesys.com**
Web site: **www.pinnaclesys.com**
Price: **Rs 17,900 (Internal PCI), Rs 19,900 (External PCI)**

Samsung ML-1630

Beauty Is Skin-deep

Take one look at the Samsung ML-1630, and you'll be forced to think: is this really a printer? Samsung has paid great attention to the aesthetics of this mono laser printer by giving it a glossy, piano-black finish and no sharp edges. Just 12.2 cm tall, it's smaller than many inkjets out there.

The control panel is rather simple—there are two touch-sensitive buttons for Power and Cancel. The visual indicators become visible during operation in the form of a blue LED display that displays the total number of pages printed. The input tray is hidden, and can be opened using a mechanical button. It holds 100 sheets, but the output tray holds just 30.

The printer has issues handling paper—almost every time we printed, the first page emerged crumpled. For a multi-page document, it took 17 seconds for the first page and around 4 for every page thereafter. In our standard test print, it could print at 6.5 pages per minute. Print quality is decent—sharp edges, proper gray tones and small point sizes were all printed well.

The printer features only the USB interface. Nothing comes bundled except for the standard drivers and a manual. It comes with a toner cartridge that's good for 1,000 pages, but a replacement cartridge (for 2000 sheets) is the standard one used with this printer. Backed with a one-year warranty, the Samsung ML-1630 is priced at Rs 11,490—too high a price for top-notch aesthetics with sub-par performance.

RATINGS	
Features	★★★
Performance	★★★
Ease of Use	★★★★
Value for Money	★★½
Overall	★★★

Specifications

Resolution: 1200 x 600 dpi (hardware); Input tray: 100 sheets; Output tray: 30 sheets; Buffer: 8 MB; Dimensions: 33 (W) x 37.6 (D) x 12.2 (H) cm; Weight: 6.3 kg

Contact: **Samsung India Electronics Pvt Ltd**
Phone: **+91-11-41511234**
E-mail: **anupam.k@samsung.com**
Web site: **www.samsung.com/in**
Price: **Rs 11,490**

Aigo U Watch MP3 UW-F020 512 MB

An MP3 Watch For Geeks

This watch, which looks like an elegant (but not gaudy) analogue watch, has an MP3 player built in. The finish is scratch-resistant galvanised steel-grey and black plastic. We were pleasantly surprised to find that it isn't cheap trash (it's made in China!)—it's rather ruggedly built.

The rubber strap looks stiff and uncomfortable, but once you wear it, it is not that bad. The watch looks rather large. The strap makes it look like an alien contraption, thanks to the embedded USB connector which is to be pulled off to connect it to the PC. The dial is eerie, with hands and hour marks that emit a calm green glow in the dark. Indicator LEDs below the hour marks glow when the MP3 player is turned on, and make the watch look even more surreal.

The device gets instantly recognised as a removable drive, so you can also use it to carry your data. Transfer speeds are slow—it takes 110 seconds to transfer 100 MB, so it takes around 9 minutes to fill it up. Getting used to the controls is a little frustrating at the start, but you can quickly get the hang of it. The absence of any sort of display is sorely missed, but things are made a little uncomplicated by the LEDs.

MP3 playback is above par, and the bundled earphones do an excellent job of complementing the player. There are four very effective preset equaliser settings. The fade-in and fade-out effects are there by default, though these often clip a couple of seconds of the start of the first song being played. The earphones are rather large, and may be uncomfortable for some—and thanks to the 2.5 mm jack, you can't connect your favourite headphones, either. It also has a voice recorder with an inbuilt microphone, which made us feel like Johnny Sokko commanding the Giant Robot—it adds plenty of nerd value.

MP3 playback lasts a little over 5 hours, which is fair—and the watch and player have separate batteries, so you can tell time even after the music stops. 512 MB is just OK for an MP3 player, but may seem less if you have a voracious appetite for audio; there is also a 1 GB version available. Bundled along is a longer cable to connect it to the USB port and software that lets you upgrade its firmware. It costs Rs 4,125—a bit high, since there is no video or even FM Radio.

RATINGS	
Features	★★★½
Performance	★★★★
Ease of Use	★★★½
Value for Money	★★½
Overall	★★★½

Specifications

Capacity: 512 MB; Audio: MP3 (32 Kbps - 320 Kbps), WMA (5 Kbps - 256 Kbps); Voice recording: ADPCM; Interface: USB Full Speed 12 Mbps

Contact: **Bridge One Technologies**
Phone: **+91-40-23550794**
E-mail: **m.barathwaj@gmail.com**
Web site: **www.aigo.com**
Price: **Rs 4,125**

System Mechanic 7.5.3

Solid Maintenance For Your PC

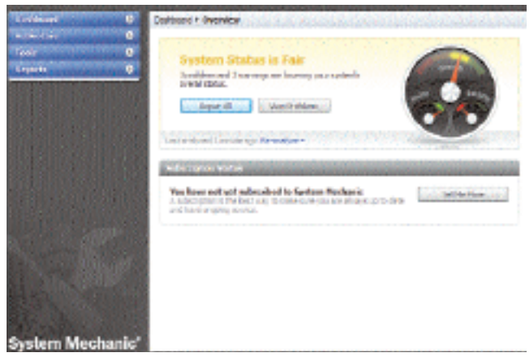
One of the first things you'll notice about System Mechanic is the facelift. The new interface has a nice red theme with bits of Vista-like treatment.

Cosmetic details aside, System Mechanic 7 is now in charge of more than just Registry cleaning. It now does everything from checking your system for security holes to maintaining disk drives as well.

ActiveCare is a feature that allows you to select which components System Mechanic should automatically handle. With that set up, you won't need to do anything manually—cleaning up the Registry, for example.

Newcomers won't have to worry with any of the advanced features. System Mechanic scans your entire system and then lets you decide to fix all the issues it finds. You can also manually run each cleaning task individually. If you do make some massive changes to the Registry during the cleanup, the History feature has you covered—it lets you jump back to previous settings by undoing changes to the Registry.

There's a process manager that displays all running applications—you can choose to shut down applications like you would in the Windows Task Manager; only here, you can also stop them from running again. This is useful when you've found what could possibly be a worm or virus on your drive.



The program is fairly light: it only takes up 30 MB of RAM.

System Mechanic 7.5 has come a long way, and there have been a lot of new features added. The price tag of $49.95 (Rs 2,000) is still a little too steep, though, considering there are free Registry cleaners like CCleaner available for download.

RATINGS	
Features	★★★½
Performance	★★★★
Ease of Use	★★★★
Value for Money	★★★
Overall	★★★½

Specifications

Microsoft Vista / XP / 2000 compatible; Use on up to three PCs

Web site: **www.iolo.com**
Price: **$49.95 (Rs 2,000)**

Brother DCP-135C

Appealing Overall

The DCP-135C is the newest addition to the inkjet digital copier stable of Brother Inc. It is built ruggedly enough to withstand the rigours of office work. It's just 15 cm tall, and the power connector is located to the left, making it easy to place against a wall. This is a four-cartridge inkjet solution—more economical, and the cartridge bay is placed at the front right for easy access.

There is no power button, so you have to use the soft-power switch. The interface is USB 2.0; the USB cable has to be channelled through a narrow canal into the interior of the device—which helps prevent accidental disconnections. The buttons are well-placed, but there can be some confusion—the OK button does not apply a setting unlike most other MFDs (!), so one needs to read the manual. The one-line LCD relays information about status and settings. The input tray holds 100 sheets while the output tray holds 50.

Print quality is decent—there were no smudges, but the borders were not always crisp. Fine print was legible even at the smallest point size. Colours in the photo print were a little washed out, but not too much—no smudging here either. Normal text printing is slow: 27 seconds for a page, while combination documents print relatively faster at 33 seconds for a page. Printing an A4-size photo takes just under 270 seconds (4.5 minutes)—quite average. The scanner recognised colours accurately, and picked up minute details. It scans really fast—a 300-dpi A4 colour photo took just 49 seconds.

Bundled with the MFD is the ScanSoft PaperPort—a good document management and OCR software. ControlCentre 3 is a control panel that puts all the functions of this MFD at your disposal in a single place. This is an enticing buy at Rs 5,400.

RATINGS	
Features	★★★
Performance	★★★½
Ease of use	★★★½
Value for Money	★★★★
Overall	★★★½

Specifications

Printer: Resolution: 1200 x 6000 dpi (effective); Input tray: 100 sheets, Output tray: 50 sheets; Buffer: 16 MB; Printing technology: 4-cartridge inkjet; Scanner: Flatbed type; Resolution: 600 x 2400 dpi (optical); Media size: A4; Bit depth (output): 24; Dimensions: 39.8 (W) x 36 (D) x 15 (H) cm; Weight: 7.1 kg

Contact: **Brother International (India) Pvt Ltd**
Phone: **1800-222-422**
E-mail: **info@brother.in**
Web site: **www.brother.in**
Price: **Rs 5,400**

1/2 Page Ad

You know FAT is a filesystem, that NTFS is a better filesystem, etc. But what *is* a filesystem? How do they work?

Samir Makwana

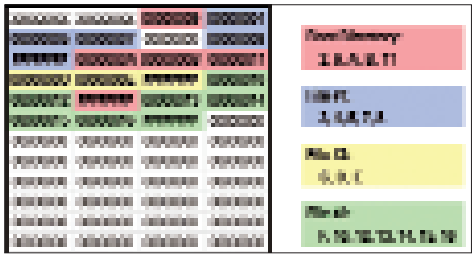
Dumping a cupboard-full of documents, audio cassettes, video tapes and even photo albums on a hard drive or DVD might sound easy, but is actually a complex process. Operating systems use logical data structures for storing, organising and keeping track of files on a partition or on an optical disc, called a filesystem.

The basic function of a filesystem is to make efficient use of disk space for data storage, ease basic file operations (read, write, copy and delete) and catalogue files for faster retrieval.

A disk partition is like a compartment in a train, while the filesystem is the seating arrangement fixed within the compartments. Before using any partition on a disk, a logical filesystem needs to be initialised on it. Let's have a look at how a typical filesystem works.

How Filesystems Work

The space in a hard drive is divided into units called sectors, usually of 512 bytes. The filesystem groups the sectors together after creating a sector index; the group is called a cluster or an allocation unit. It's difficult for the filesystem to deal with data on a sector-by-sector basis, so when the filesystem needs to access a sector for a read-write operation, it will first define the cluster number of that sector. Then from that cluster, it will use the sector index to access that particular sector.



How files are distributed in a FAT filesystem

Each logical volume (hard drive) has a table—called the File Allocation Table (FAT)—that carries all the information about the sectors and the files stored on those sectors.

Types Of Filesystems

Disk-based filesystems

These would be found on hard disks, CD-ROMs and DVDs. Files are stored in a sequence of bytes on fixed-sized blocks called sectors; these filesystems feature random-access file reads and writes, and also file fragmentation across the disk.

Some disk-based filesystems also have journalling and versioning. In a Journalling filesystem like XFS on the Silicon Graphics platform, changes in files are logged first in a specially-allocated area called a Journal before they're actually written on the main filesystem. Versioning filesystems like OpenVMS allow for the existence of several versions of the same file, and take periodic backups.

Popular disk-based filesystems include:

Windows: New Technology File System (NTFS), File Allocation Table (FAT, FAT16, FAT32), and many more; Linux: ext, ext2, ext2fs, NSS, ReiserFS and several others based on Linux and Unix variants

Mac OS X: Hierarchical filesystem (HFS+), HFS, Macintosh filesystem (MFS), Xsan

Disk-based filesystems can be further classified into:

Solid-state media filesystems: These are designed for storing files on devices that rely on Flash memory as their storage. Such filesystems require special handling, because data blocks wear out if information is repetitively written and rewritten on the drive. Besides, the blocks have to be erased explicitly before any data is written on them. The Journaling Flash filesystem (JFFS) and Yet Another Flash filesystem (YAFFS), are popular solid-state filesystems.

Record-oriented filesystems: The basic purpose of such filesystems is to store files in the form of records to be compatible with older operating systems that are used exclusively on mainframes and minicomputers.

Shared-disk filesystem: These are also known as SAN (Storage Area Network) filesystems or Cluster filesystem. As the name suggests, they are used on huge blocks of storage which are directly accessible to computers via a network connection.

Network Filesystems

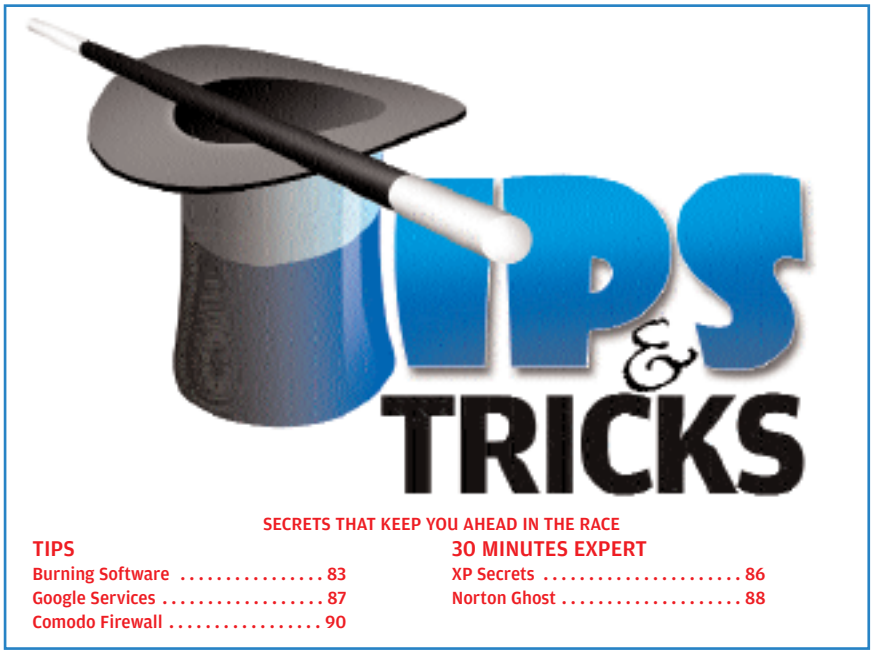
Network filesystems (or distributed filesystems) support the sharing of files, printers and other computing resources over a network. The performance of such filesystems is measured by the time it requires to satisfy the service requests by different computers connected on the network.

Such filesystems are found on file-servers and provide access to files by acting as clients for remote access protocols like NFS (Network filesystem) or SMB (Server Message). NFS and SMB are popular examples of network filesystems.

Several network filesystems prevail today: 9P, Apple Filing Protocol (AFP), NetWare Core Protocol (NCP), Coda, Distributed File System (DFS) and Google File System (GFS), to name a few.

Filesystems are critical for storage media to run properly with the operating system. Regular maintenance and protection from malware is not only advisable, it's necessary. ■

samir_makwana@thinkdigit.com



SECRETS THAT KEEP YOU AHEAD IN THE RACE

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BURNING SOFTWARE

CDBurnerXP

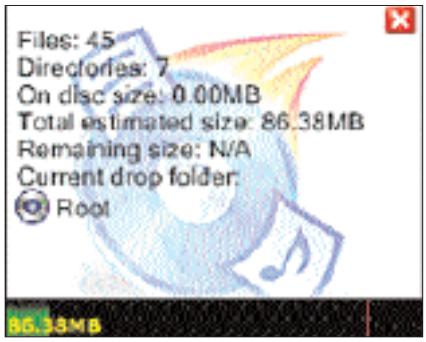
We burn CDs and DVDs all the time, and Nero's all-too-well-known suite isn't the only option. CDBurnerXp is a free alternative

Harsho Mohan Chattoraj

to Nero, if you don't want to cough up for Nero's features.

Using The Dropbox

The dropbox feature allows you to browse through your Windows folders and dump the items you want to burn. This way, you don't need to browse using the CDBurnerXP interface. To use the feature, click the `Show Dropbox` button on the toolbar or go to `View > Show Dropbox`. Drag and drop files onto the box that appears at the top left



The dropbox makes it easier to compile data for a burn

of the screen. The dropbox shows the size of the compilation and the current path where the folders are being dumped. Right-click on it and click `Select Folder To Drop Into`. This way you can choose which folder the files get dumped. To get back to the default interface, click the `Close` button on the dropbox.

Set Media Size Manually

Optical disc burning software generally detects the media inserted in the drive and determines the amount of data that can go on it, but you won't get accurate information if you're piling up for a future burn with no disc in the drive. To tell the software the type and capacity of the media, right-click on the

Set the type of media so you know in advance how much space there is

bar for data being burnt and click `Select media size`. Choose the type of the media you'll be using. The changes will be seen immediately in the main program as well as in the dropbox.

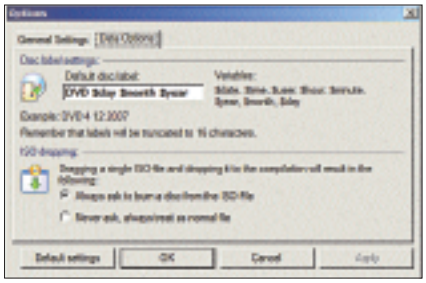
CDBurnerXP houses a basic cover printing feature!

Printing CD Covers

CDBurnerXP might be a fraction of the size of Nero, but it's still got basic features like printing CD covers. Once you have all your data in place for burning, go to `File > Print cover` and select the type of cover. Enter the name of your disc, and if you want to, choose an image for the cover. Select `Preview` to see how it'll turn out. If you're happy with it, press `Print`.

File Filter

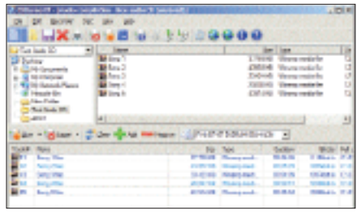
The file filter feature allows you to filter out file types that you don't want to burn. For example, if you want to burn all the PDFs in a folder and none of the Excel or Word documents, you will find the feature useful. Click on `Edit > File Filter`. Enter the file formats that you want to filter with a semicolon to separate them. For example, `*.pdf;*.doc;*.xls` will only display the PDF, DOC, and XLS formats.



Let CDBurnerXP automatically label discs for you

Disc Labelling Data Options

Most of the time, all the CDs and DVDs you burn end up with the same old senseless label—DISC or DISC1. CDBurnerXP can change this. Go to `File > Options > Data Options tab`. Under `Default Disc Label`, enter `DVD $day $month $year`. There are other variables like `$time`, `$user` and `$date` that you can use as well. Click OK and then restart the program for the changes to take effect.



Remember to restart CDBurnerXP if you want to burn an audio CD. It's a bit annoying, but there you go

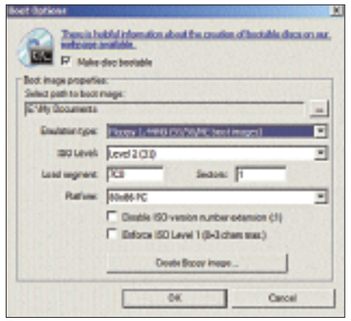
Burning Audio CDs

If you're burning data CDs all the time and you want to burn an Audio CD, you'll notice no option to create a new Audio CD—the only way is to close CDBurnerXP and restart it; only this time, make sure you choose the `Create Audio CD` button. Now you can drag and drop audio files like you would data files.

If you want to burn an audio CD without spaces between tracks, use the dropdown menu for `Burn disc with DAO` when in Audio CD burning mode.

Creating A Bootable Disc

Creating bootable discs may be needed while trying to create LiveCDs or booting into them for OS installations. Go to `Disc > Boot options` and mark the checkbox against `Make Disc Bootable`. Click the button to select the image and choose the type of emulation from the dropdown menu. You can also



Embedding a boot image onto a disc is simple to do

create an image from a floppy drive by clicking on `Create Floppy Drive`.

Working With Disc Images

CDBurnerXP has features that allow you to create or burn disc images. If you have images that were created on Nero, for example, you can convert them to ISO by going to `File > Convert ISO Image`. Select the source file—which can be either a BIN or an NRG file—and then select a location to create the image in. Click the `Convert to ISO` button.

Discs can be replicated in the same manner. If you don't want to burn them right away, you can have the image created from the disc dumped on the hard drive. Go to `File > Copy ISO disc`. Select the source drive and instead of the destination drive being the optical disc drive, select the hard drive. Now a new field will appear. Here you can choose the path and a name for the ISO to be dumped.

NERO 8

Nero isn't just about the Burning ROM software—it's also about all the extras that come with it. You can find the installer for the trial version of Nero 8 on the November DVD.

Move The Cache Folder

Nero uses a location on the hard drive when it needs to cache files before burning them. If you're running short on space in your main partition, you would want to change it to one with more free space. Go to `File > Options > Cache` and click on `Browse` to choose a new location.

Sounds For Events

Nero has support for sounds but they are disabled by default. Go to `File > Options > Sounds tab` to set sounds for events. The sounds that come with Nero are in the default locations, but you can select the ones you want by clicking the `Browse` button.

Nero BurnRights

Nero BurnRights is an application that comes with Nero; it allows you to define which users on your system can burn CDs and DVDs. Go to `Start > All Programs > Nero 8 > Nero Toolkit > Nero BurnRights`. Select the type of users that you want to give permission to and click `OK`.

Do Not Eject The Drive

Every CD burnt is immediately ejected from the drive by default in Nero. To keep the CD or DVD in the drive once it's done, go to `File > Options > Expert Features`. Check the box against `Do not eject the disc after the burn is complete` and click `OK`.

Retro Nero

We all miss the Nero Burning ROM from the past years when it was a compact little CD / DVD burning software and not a complete suite with modules we never use. It's reached a point where there are tiny, hacked, illegal releases of Nero Burning ROM made available on the Internet which take a fraction of the space of the entire suite. If you have the nasty habit of blindly clicking "Next" during the Nero 8 installation, you'll most probably have skipped the screen where you choose the Custom installation mode. Uninstall your current copy of Nero if you have it installed. Start the installation till you reach the window where you can choose between Typical and Custom installation. Select the `Custom install` option and click `Next`. You'll soon see a window with the list of all the Nero components selected. Click on each one of them and select `This Feature Will Not Be Available`. Do the same for everything other than Nero Burning ROM and continue with the installation. At the end, you'll have completed your own clean compact Nero Burning ROM installation the way it used to be.

Easter Egg!

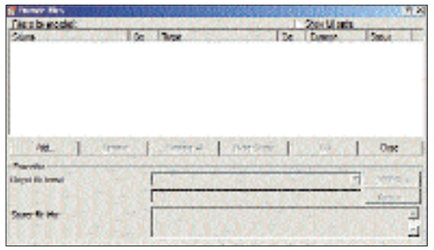
Nero Burning ROM still has the Easter Egg which you can find in most of its earlier versions. Go to `Help > About` to see the credits. Double-click in this window and you'll see the credits text flowing with different kind of effects. If you hold down [Ctrl] and [Shift] together and then double-click, the effects and scrolling will speed up.

Searching For Specific Formats

Trying to search for a few selected filetypes you need to burn can be a nightmare in an unassorted folder. To look for a particular file using wildcards, right-click on the folder in the left pane of the browser window. Click on `Select pattern`. Enter wildcards with semicolons as seperators and click `OK`. For example, entering `*Digit*;*.PDF` as the pattern will select all files with "Digit" in their names and PDFs as well.

Encode Audio Files

Nero Burning ROM comes with an in-built audio encoder: go to `Extras > Encode Files`, click on `Add` and



A basic audio encoder is built into Nero Burning ROM

select the files you want to encode. Using the drop-down menu for Output file format, select which format you want to encode to and click on the `Settings` button to set parameters for the encoder. Finally, click on the `Browse` button to select where you want to store the encoded files once encoded. Click `Go` to start encoding!

Better Compatibility

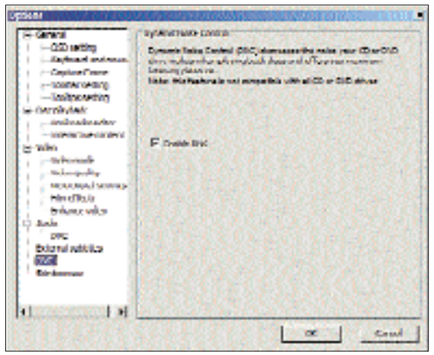
One of the issues with media and the way they are burned is that is that they're not always compatible on all DVD players. There are a few things that can be done to solve this: one of them is to set the high-compatibility mode on for your drive. Click on the `Choose Recorder` button to the right of the drop-down menu for selecting the drive. Select your drive and click on `Options`. Check the box against `DVD High Compatibility Mode`. This will make sure that at least a gigabyte of data is written on the media even if you don't have that much data.

Another thing you can do is to use the Book Type settings—this is basically is to tell the drive that you have inserted a DVD-ROM (for example) not a DVD-RW or any other kind of DVD. This way, there are better chances of the drive reading your media. Use the drop-down menu for Book Type settings in the drive properties window and select DVD-ROM, as it generally gives better compatibility.

NERO SHOWTIME

Dynamic Noise Control

If you're playing CDs or DVDs, you would know that your drives run continuously like your hard drives do. The noise from spinning up and down of the drives can be distracting. Nero's developers have implemented a feature called dynamic noise control that helps reduce this sound. You can find this option by right clicking on the Nero

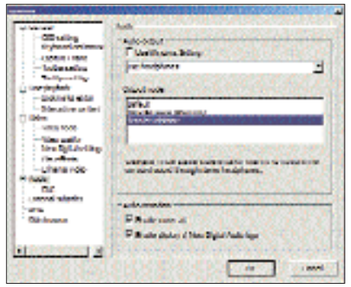


Dynamic Noise Control can help lower drive noise with certain drives

ShowTime interface and clicking on `Options`. Click on `DNC`. Turn it on if it's off.

Dynamic Range Control

Dynamic Range Control is not just another fancy name for a feature in Nero ShowTime. It is basically normalisation of the volume of the audio stream—so if you're listening to music files of different volume levels, you won't have to jump to the PC every time a loud file plays. Right-click on the ShowTime interface, select `Options` and go to `Audio > DRC`.



Watching movies with surround sound on headphones is worth trying

(Pseudo) Surround Sound On Headphones!

Nero ShowTime is great for watching high-definition videos, and with these, you're bound to get multi-channel audio as well. Now not all of us have fancy surround sound speaker setups. Nero can simulate surround sound and give satisfactory results on stereo speakers and headphones as well! Right-click on the ShowTime interface and select `Options`. Under `Audio`, uncheck the box for `Use Windows Settings`. From the dropdown, select the type of setup you have—if you select 2 speakers, use `Nero Virtual Speaker` from the Output mode. If you have headphones, check `Nero Headphone`.

Customise Fonts

Nero uses an On-screen Display (OSD) to display information of the video or movie being played. By default, a set of fonts and colours are assigned to it, but you can select a better set of fonts and colours if you wish. Go to `Options` and click on `OSD Settings` under `General`. Make sure `Enable` is checked, and then click on `Set Font` to change the font type for the OSD. In the previous menu, you will also find the option for setting a colour and a position where you want the OSD to show up.

Similar fonts are used to display subtitles for movies. There, too, you can set which fonts should be used to display them. In the `Options` window, click on `External Subtitles`; check the box against `Enable External Subtitles` and click the `Set Font` button to set a different font style.

Video Quality

High-definition playback isn't very easy for all hardware unless there's hardware decoding support from your graphics card or if you have a fairly new dual-core processor. Nero has an automatic quality setting that downsizes the quality of the video if your system doesn't perform too well. You can find this option under `Video Quality` under `Options > Video`. The setting should be set to `Auto-adjust`. If you know your system performs fine, then you would want the best quality—push the slider to `Maximum Quality` and vice versa if your system isn't performing as well as you'd like.

Nero's Image Mounting tool

Nero comes with software called ImageDrive which you'll find under Nero Toolkit in the Start Menu. It allows you to mount .NRG and .ISO images as a virtual drives so you can load some of your backed-up discs without having to put them in the drive. When you first run it, it installs the drivers which create a virtual drive. Once that's done, click on the `Enable drive` checkbox for the first drive. If you want a second drive, you can check that box as well. A new tab called `First Drive` will appear. Click on it and point to the image you want to mount. Now when you go to My Computer or Explorer, you will find a new drive in the list. Clicking on it will reveal all the files and folders from the image.

Nero DiscSpeed

DVDs have had a comparatively notorious reputation when it comes to reliability, so it's very important to use good media and check the data on it. Nero DiscSpeed, under Nero Toolkit, allows you to check for disc quality. Select the `Disc Quality` tab and insert a burnt disc into the drive. Make sure you have the DVD drive selected from the drop-down menu at the top and click `Start`. The software gauges the quality of the burnt disc. A final score will be shown in the Quality score field on the right. On Internet forums, you'll find a lot of such media scan posts. Run this test on different kinds of media you've burnt so you know which media works best with your drive.

Even More XP Secrets

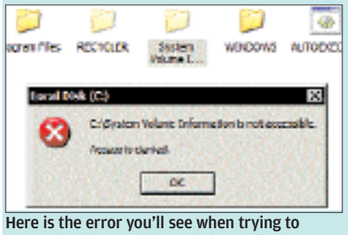
Here are some things you thought you couldn't do in XP

Asfaq Tapia

We won't waste much time with this introduction, so here it is—another round of tips and tricks that will improve performance, stability and sort little annoyances in XP, among other things. Statutory warning: Playing with your Registry can be injurious to your PC's health.

System Volume Information

If you use System Restore, you must have



Here is the error you'll see when trying to access the System Volume Information

noticed the System Volume Information folders in the root of each of your drives. This folder stores the files used by System Restore. Their sizes can sometime balloon to gigabytes, because System Restore doesn't delete your older restore points when creating a new one. Moreover, every time you try to access the folder, you get the Access Denied error. Oh, and you can't delete the folder, either. So what do you do when you want to view its contents?

In an Explorer Window, go to `Tools > Folder Options > View`. Here, choose `Show Hidden Files and Folders`. Uncheck `Hide Protected Operating System Files` and `Use Simple File Sharing`.

You should now be able to access the System Volume Information folder; if not, you'll have to add yourself to the list of users allowed to access the folder. Right-click on System Volume Information and go to `Properties > Security`. Click `Add` under `Groups or User names` and enter your username in the dialog that appears. Click `OK`, and in the bottom half of the `Security` tab, grant yourself all the permissions.

Sort Menus Alphabetically

Start the Registry editor: `Start > Run > regedit > [Enter]`. Navigate to `HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\MenuOrder`

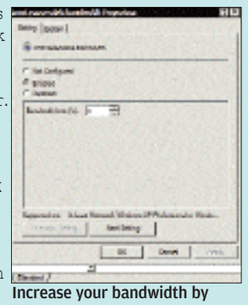
Right click on the `MenuOrder` folder, choose `Permissions`; go to `Advanced` in the new window that pops up, and uncheck the entry `Inherit from parent the permission entries that apply to child objects. Include these with entries explicitly defined here.` A security dialog box will open up; choose `Copy`. This will take you back to the `Advanced Security Settings` for `MenuOrder` dialog. Click `OK` here. In the `Permissions` dialog, uncheck `Full Control` in your account and security groups. Don't change the `Read` permission. Reboot the computer and all your menus will be alphabetically sorted.

The start menu gets sorted automatically, too

Increasing Internet Bandwidth

Windows XP reserves 20 per cent of your Internet bandwidth for Quality of Service. This is unnecessary, and can be disabled:

- Open the Group Policy Editor: `Start > Run > gpedit.msc > [Enter]`
- In the left-hand column in the window, navigate to `Computer Configuration > Administrative Templates > Network > QoS Packet Scheduler`.
- In the right column, double-click `Limit reservable bandwidth` and select `Enabled`.



Increase your bandwidth by 20 per cent

- Change the `Bandwidth Limit` to `0` and click `OK`.

Getting Rid Of The "Unread Email Messages" Message...

...on the Welcome Screen, that is. Here's how to do it:

- Start the Registry Editor: `Start > Run > regedit > [Enter]`
- Navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion`
- Right-click on the `CurrentVersion` key and select `New > Key`. Name this `UnreadMail`.
- Right-click on the blank area on the right side, and select `New > DWORD Value`. Call it `MessageExpiryDays` and give it a value of `0`.
- You may need to log off or restart for the changes to take effect.

Modifying the "Internet" Key On Internet Keyboards

You can change what programs you want to launch with the Internet key:

- Open the Registry Editor and navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\AppKey\7`
- Right-click in the right column and create a new String called `ShellExecute`
- Set the value as the application path, for example, `C:\Program Files\Opera\Opera.exe`. If you want to disable the key, delete the value from `ShellExecute` and leave it blank.

Open Explorer With A Single Pane

When you use `[Windows]` + `[E]` to open a Windows Explorer window, it opens in the two-pane layout. To have it open with a single pane by default, do the following.

- In the Registry Editor, navigate to `HKEY_CLASSES_ROOT\Folder\shell\explore\ddeexec`
- Double-click on `(Default)` and change the string to `[ViewFolder("%1", %I, %S)]` (including the brackets)
- To revert to the double-pane window, set `(Default)` to `[ExploreFolder("%1", %I, %S)]`

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GOOGLE SERVICES

Google's all but taken over our online lives now—can you imagine doing anything without it?

PICASA

Download Albums From Picasa Web Albums

Photos that you see on Picasa Web Albums can be downloaded directly to the Picasa program without having to manually save each photo from within your browser. When on an album page, look for a link on the left side that says `Download Album`; confirm the download, and once it's complete, you can view all the downloaded albums by clicking on the `Downloaded Album` link on the left.

Upload Your Albums

One of the biggest and the most important feature of Picasa is its integration with Google's online photo hosting service—Picasa Web. Click on the `Sign in to Web Albums` link on the top right of the Picasa window to log in to the service—use your Google user ID and password. Once signed in, select the images you want to upload and click the `Web Album` button at the bottom. Give a title to the album and other description if needed. Select the resolution you want so that the images can be resized, and choose whether you want to make the album public or private. Click `OK` and the images will be uploaded.

Creating Albums With Starred Photos

Just like in Gmail and Google Reader, you can "star" important photos. Browse to the folders or albums where you have all your photos. Select the ones you want and click the Star icon at the bottom of the screen. When you're done, go to `File > New Album` and give it a name and description. Now click on `Starred Photos`, select all the images and drag them into your newly-created album.

Getting More Organised

When you install Picasa and run it for the first time, it asks you whether you want to scan your entire hard drive or just scan your `My Documents` folder. All the photos on the hard drive appear as folders and albums on the left and there's no real way of identifying which folders they belong to on your hard drive. Sometimes, unnecessary images like ones from your browser cache folders also make their way into the list. The first thing to do is to manually enter the paths that you want to scan. You can do this by going to `Tools > Folder Manager`. Choose the folders you don't want, select the `Remove from Picasa` radio button and click `OK`. Add any folders that Picasa may have left out in the same manner.

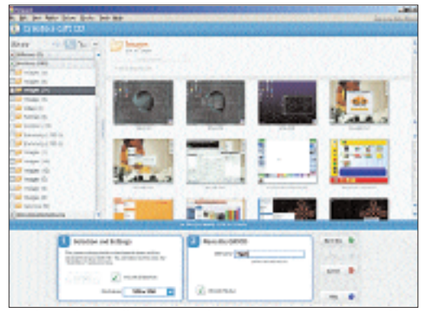
Another way you can see from where Picasa has listed all the photos is to go to `View > Folder View > Tree View`.

Backing Up Photos

Every now and again, your hard drive is bound to get clogged with photos that you've taken and it is a good idea to keep backing them up from time to time. Picasa gives you the option to burn your photos on to optical discs. Go to `Tools > Backup Pictures`, select `New Set` and give a name to it. Also mention what formats you want to save and if you'd like to save the backup into a different folder or a network drive by clicking on `Disk-to-disk backup`. Click `Create` to finish. Now check the checkboxes for the folders and albums you want to backup and select `Backup`.

In the location that you backed up the photos, you'll find `PicasaRestore.exe`, which you can run to restore the images to the original path.

Picasa also has a Gift CD feature—go to `Folder > Create a Gift CD`.



Backup photo albums to a drive or even on a CD to gift it to someone

Click on `Add More` to add more folders to the gift CD. Select the resolution for the photos using the `Photo Size` drop-down menu and give the CD a name. Finally, click `Burn Disc` to burn the CD.

Adding Captions

To add a caption to a photo, double-click on it and you will find a small text area at the bottom of the photo. Enter your caption here and hit `[Enter]`. To delete the caption, click the `Delete this caption` icon on the right. To view the captions while in the main photo index view, go to `View > Thumbnail Caption > Caption`.

Host Your Own Web Albums

If you don't want to use Google's online Web space to store your photos, you can upload them to your own personal Web site's FTP server. Right-click on the album you want to upload and select `Export as HTML Page`. Enter a name for the album title and the resolution that you want to export the images to. Click `Next`, choose a template from the list and click `Finish`. The finished page will be displayed in your default Web browser. You can upload that folder to your site and create a link to it from your main page.

There's a feature that Google claims as experimental but it allows you to upload the photos to the FTP server directly through Picasa. Go to `Tools > Experimental > Publish via FTP`. Again, select a resolution, a save location and a template. Now you'll be prompted to select an account. Click on `Account Manager` to create a new account. Click `Add an Account` and enter your FTP server information—address, user and password—and click `OK`. Now you can select your new FTP server and click `OK`.

GMAIL

Google never stops plugging new features into Gmail. We take a look through some of the more useful ones added recently.

Colour Labels And Organising

Labels and filters are a good way to sort e-mail. To create a label, go to `Settings > Labels`, give it a name and click on `Create`. Now your label will appear in a box to the left side of the window. Click on the blank box to the right of the label and select a colour to assign it to the label.

You can set labels to your mails manually by clicking the checkbox for the mail and clicking the dropdown menu for more actions and selecting the label of your choice. You can set more than one label to the mail.

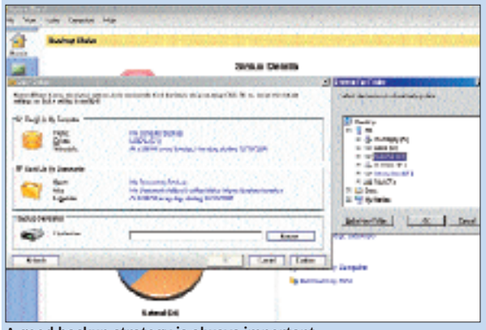
30 Minutes Expert

To The Rescue

Use Norton Ghost to keep your data safe from untoward incidents

Samir Makwana

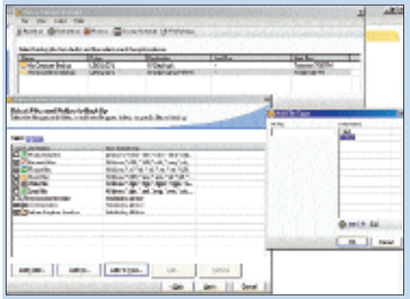
Norton Ghost may cost a bit, but it's a brilliant solution to take backups and images of your data. You can find the trial version on this month's DVD.



A good backup strategy is always important

The Basics

When you run the program for the first time, you'll be asked to select a backup destination. Choose any healthy drive or partition except for C:, or better yet, an external hard disk. After setting the backup destination, define the source—choose `Run or Manage Backups` under the `Tasks` menu or the main screen. Ghost lets you back up selected files and folders, or entire drives. Drive backups are called Recovery Points, and are saved with the .v2i, .iv2i or .pqi extensions. The new version of Ghost lets you create drive images as well as file and folder backups (the older versions were only drive imaging utilities), so it's a complete backup solution.



Specify critical files and folders for backing up

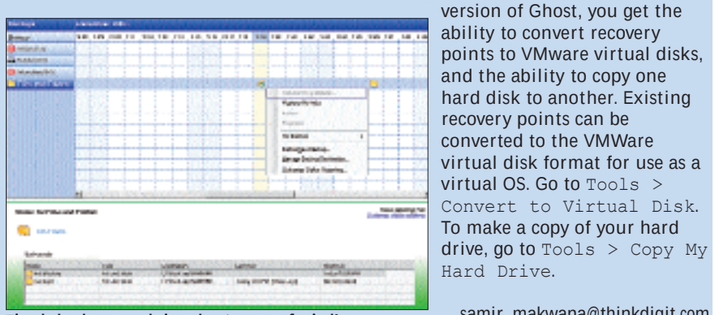
To define a backup, open the `Tasks` tab in Ghost and choose `Run or Manage Backups`. To back up everything on your computer, select `Back Up My Computer`. The `Back Up My Documents` option will allow back up your My Documents folder, in addition to file types like music, movies and so on. To change the drives you want to back up (or files in the latter case), click on the drive letter (or folder name) in the dialog.

The recovery points you create can be copied to CD DVD under `Tools > Copy Recovery Point`.

Browsing A Recovery Point

Once you've made a recovery point of a partition or on your hard drive, you can browse through the files as they were at the time of the backup, and even restore individual files instead of restoring the entire recovery point. Go to `Tools > Recovery Point Browser` and open the Recovery Point you want to browse through. To restore an old version of a file, right-click on it and choose `Recover`.

You can also browse the recovery point in Windows Explorer by mounting it as a separate drive. In the `Recovery Point Browser`, select the Recovery Point and click `Mount`. Alternatively, you can use Windows Explorer to browse to the Recovery Point, right-click on it and choose `Mount`. You'll be asked to give it a drive letter, and you'll be able to browse through it like you would any other partition on your PC. Any changes you make to the mounted image will go away once you un-mount the recovery point.



Timely backups can bring about peace of mind!

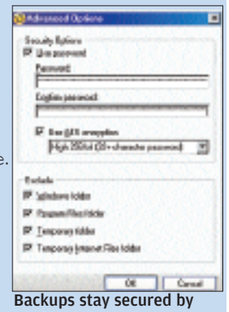
Unattended Backups And Restores

You can schedule incremental backups under the Status menu by editing the calendar. Right-click on the calendar and choose `Define New Backup`. To backup computers on the network, go to `Computers > Add` and add the IP address of the computer you want to back up. Once it's connected, you can create recovery points, schedule, and even restore backups on the computers in the list.

Helpful Tools

Backups can be taxing on your system; you can set a default performance level for backups in `Tasks > Options > Performance`.

You can also set security options while setting up a backup under the `Advanced` tab. You'll get different encryption options to password-protect (the character limit depends on the encryption level) the backup files.



Backups stay secured by setting password-protected encryption

Pay!

When you pay and obtain the full version of Ghost, you get the ability to convert recovery points to VMware virtual disks, and the ability to copy one hard disk to another. Existing recovery points can be converted to the VMWare virtual disk format for use as a virtual OS. Go to `Tools > Convert to Virtual Disk`. To make a copy of your hard drive, go to `Tools > Copy My Hard Drive`.

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To set up filters, go to `Settings > Filters` and click on `Create a New Filter`. Enter information for the necessary criteria along with wildcards. For example, if you want all your mails from Orkut to be labelled, enter `orkut` in the subject field. Go to the next step. Check the box against `Apply a Label` and select a label from the list. Set any other options that you want and click `Create Filter`.

Connecting To AIM Through GMail

You can now login to your AIM or ICQ user ID using Gmail. When you've logged into Gmail, click on `Options` in the Chat and click `Sign into AIM`. Enter your username and password and click on `Sign in`. You will be logged in, and all your AIM contacts will be displayed along with your Google Talk buddies with an AIM logo on the side.

IMAP For Free!

Gmail has had POP3 for a while now and now they're taking it one step further—you can now get IMAP too! IMAP synchronises mail between the Gmail server and your local machine or devices. So now, you can have the same mails on your Gmail account on the Internet, your desktop computer, your phone and so on, as long as the mail client supports IMAP. Anything that you do to your mail from any device will be updated on the server. So if you move a file from one folder to the other using your phone, that change will be reflected on Gmail and your mail client at home.

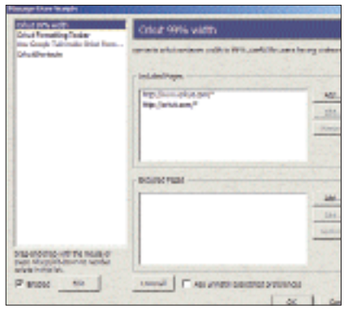
First, enable IMAP for our account—once you're logged into your Gmail account, go to `Settings > Forwarding and POP / IMAP`. Under the header `IMAP Access`, click `Enable IMAP` and click `Save Changes`. Next, set up IMAP for the mail client. We'll use Outlook Express since it's available on every Windows machine. You can use similar steps for any other IMAP-supporting mail client that you may use. Create a new IMAP account by going to `Tools > Accounts` and select `Add > Mail`. Enter a display name and your Gmail address. Keep clicking `Next` till you reach the Window where you need to enter the server addresses. Select the server type as IMAP from the drop-down. Enter the address for incoming mail server as `imap.gmail.com` and outgoing as `smtp.gmail.com`. Click `Next`. Enter your account name as `your_mail_id@gmail.com`. Enter your password and proceed to finish the setup. Click on `Properties` for the account you just created. Go to the `Advanced` tab and enter the Outgoing SMTP port number as 465 and incoming as 993. Also check the boxes against `This server requires a secure connection (SSL)` for both the incoming and outgoing ports. Before clicking OK, go to the `Servers` tab and check the box against `My server requires authentication` for the Outgoing Mail server. Click `OK` and click the Send / Receive button. All the folders on your Gmail server will be downloaded and you can start using your IMAP enabled GMail account.

ORKUT

We'll be honest here—we're not the biggest Orkut fans, but you can't ignore it. With a Firefox add-on called Greasemonkey, you can enhance your Orkut-ing experience quite a bit.

Scripts for Firefox

Other than the general JavaScript tricks that work on any browser, there are some that work on Greasemonkey. Greasemonkey is an add-on for Firefox that allows you to run scripts that can modify the characteristics of a page.



Greasemonkey can be used to add and modify features in a page

You can get information on Greasemonkey from **www.greasespot.net**. Download Greasemonkey from there. Once you've installed the add-on, restart Firefox.

Widescreen Orkut-ing

Widescreen LCDs are great for gaming and for watching movies. It turns out Orkut on widescreen is pretty useful as well.

There's a Greasemonkey script which stretches Orkut pages so you see a lot more and have far less vertical scrolling to do.

When you have Greasemonkey setup right, visit **http://userscripts.org/scripts/source/12286.user.js**. A window should pop up to confirm the adding of the script. Click `Install`. Orkut pages will now be stretched to the width of the window.

The lack of visible formatting tools can be fixed by using a Greasemonkey script

Add A Formatting Bar

When it's time to scrap your buddy back and you want to keep things a little colourful, you're busy looking for the formatting tools like in any other forum. Orkut's formatting tools can be accessed by clicking the scrap tips link next to the text entry box. There's also a Greasemonkey script that will make the formatting tools show up right on top of the text box. Download it from **http://userscripts.org/scripts/source/12841.user.js**.

Adding a Talk gadget in Orkut

We've shown you how to use Google Talk in your browser before, but now you can go crazy chatting with your buddies through Orkut itself. Download this script: **http://userscripts.org/scripts/source/12532.user.js**. Go back to your Orkut home page and you'll see a Google Talk addon above your friends list. Click `Show GTalk` to show the application.

Keyboard Shortcuts For Orkut

With the power of Greasemonkey and its scripts, you can now use shortcuts to quickly jump from your scrapbook to your home page, for example. Download the script from **http://userscripts.org/scripts/source/12784.user.js** and then use the shortcuts given below.

Home: [Ctrl] + [Shift] + [H]
Scrapbook: [Ctrl] + [Shift] + [S]
Friends list: [Ctrl] + [Shift] + [F]
Communities: [Ctrl] + [Shift] + [C]

Hiding Your Content

Google's stepped up their effort to make Orkut a little more private by

Privacy has been implemented in Orkut

allowing you to hide parts of your content. As usual, you can find these permissions under `Settings > Privacy`. There have been some new options added here. Items like photos, videos, feeds and testimonials can now be made viewable only to your friends.

There's also an option to disable your Orkut profile from appearing in Google's search results! Click on the hide information radio button and click save changes when done.

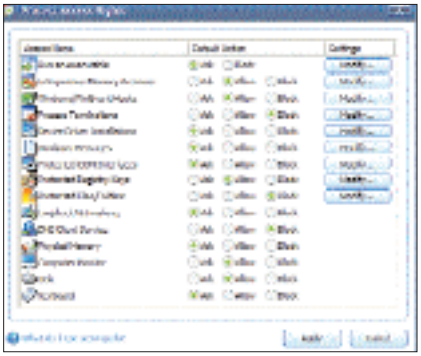
COMODO FIREWALL PRO 3.0

The "Pro" in Comodo Firewall Pro might imply an expensive commercial firewall, but it's available free on their site—**http://personalfirewall.comodo.com** and our CD every month. It's no half-complete software either—it's loaded with features and plenty of options to play around with.

While installing the firewall, be sure to choose `Advanced Firewall with Defense+`, which gives you more alerts and a few more advanced features.

View Current Connections

Ever wonder which process is hogging all your bandwidth? Comodo Firewall has a feature that allows you



Setting policies and then applying them to programs

to view all the connections going from your PC to the network or Internet and vice versa. Click on the Firewall icon on the top of the window and select `View Active Connections`.

Here you can see all details such as local and destination ports and IP addresses. You can even force-close a connection by right clicking on it and choosing `Terminate Connection`.

Disable Popup Alerts

With the Defense+ feature enabled, the pop-ups you'll receive will be more than your patience can handle. You'll get an alert for everything from connection alerts to programs accessing other programs. Right-click on the Comodo Firewall icon in the system tray and uncheck `Display Balloon Messages`. Click `Apply`.

However, if you don't want Comodo Firewall to monitor everything, click on `Defense+` and then on the `Advanced` tab on the left. Click on `Defense+ Settings`. Select `Monitor Settings` and then uncheck the activities you don't want monitored. Click `Apply`.

Quarantining Processes And Programs

Similar to looking for connections made by programs to and from the Internet, Defense+ allows you to look for programs and processes currently active. Like in the Task Manager, you can terminate programs or quarantine them and move them to a safe folder. This is useful to isolate suspicious programs—which might be worms or viruses—on the computer.

Click on `Defense+` from the top bar. Select `View Active Process List`. Here you can right-click on any process and click `Terminate` (or `Terminate And Quarantine` to terminate and move the program into quarantine).

Blocking Networks And Machines

To block IP addresses or entire networks, go to `Firewall > My Blocked Network Zones`. Select `Add > A New Blocked Address...` Here, you can choose to block IP addresses or range of IPs or even MAC address. Add the required information and then click `Apply`.

Policies For Software

Policies aren't limited to the network in Comodo Firewall—you can create policies for all kinds of software running on your OS as well. You can

You'll find several types of predefined policies

also create your own custom policies for programs. Go to `Defense+ > Advanced tab`. Select `Predefined Security Policies` to view existing policies and to add new ones. You can change the existing policies by clicking on any one, then clicking `Edit` and choosing `Access Rights` or `Protection Settings`.

To create a new policy, click on `Add`, and set permissions and access rights in the same manner. To set this policy to an application, click on `Computer Security Policy`. Select the application you want to set the policy for and click on `Edit`.

Check the `Use a Predefined Policy` radio button and then select your custom policy from the drop-down menu next to it.

Parental Control

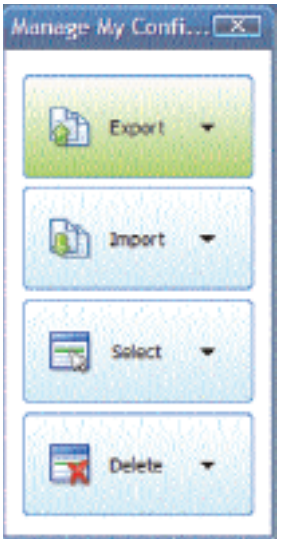
Now that you have your firewall set up and restrictions in place, you wouldn't want other users to alter the settings all the time. This is done by enabling the parental control. Go to `Miscellane-ous > Settings`. Click the `Parental Control` tab and check the box to enable password protection for the settings you've made. Click `Change Password` to set a password.

Submitting Suspicious Files

Every once in a while, you come across a worm or virus that your anti-virus program can't clean or even detect. At such times, use the file submission feature to send the file across to Comodo's developers. Comodo Firewall allows you to upload the files to them so they can analyse and create a possible fix for it. Under `Miscellan-eous`, select `Submit Suspicious Files`. Click on `Add` to add files. Add a description and mail ID if required.

Importing And Exporting Settings

Once you're done setting up and tweaking Comodo the way you need it, you want to be able to store and load the settings for future use. You can create profiles and switch to any of them whenever you want. Go to `Miscellan-eous` and then on `Manage My Configurat-ions`. Click on `Export` to export your settings. Give a name and save the file. To import a saved configuration, go to `Import > Import` and select the file you saved. Now you can switch between profiles by clicking on `Select` and check from one of the profile.■



Never lose your settings: you can save them!

Your **Questions**, Our **Answers**

All your computing niggles and nags are dealt with here!

Poof!

Q My computer suddenly shuts down after a few minutes of activity. My service engineer checked everything including the heatsink and fans, but found nothing wrong. He replaced a few capacitors on the motherboard, but the problem persists.

J Ramesh

A Since you've already gotten everything checked, our guess is that your power supply is at fault—either it is not able to deliver enough power to your PC, or there is some other problem with it. Get it examined and possibly replaced. You could go through our December issue for an idea about what kind of PSU you need.

Playing With Partitions

Q I am aware that there is a partition resizing utility in Vista, and I want to try it out, but I'm a little afraid because of the risks involved. Please tell me what I need to know.

Ankit Pathak

A The Disk Management Utility in Vista is an upgrade over that in XP; it can resize disk volumes (partitions). Before getting into it, do back up all your data, because although it can resize partitions keeping the data intact, there is always the risk of data loss in the case of a sudden interruption (such as a power failure).

Open the Control Panel and type Partition in the search box. Click on Administrative Tools: Create and format hard disk partitions. To shrink a volume, right-click on the partition to be shrunk (in Disk Management) and select Shrink Volume. You will be able to see the current size, space available to shrink, a dialog box to enter the amount to shrink by, and the volume size after shrinking. Enter the amount to shrink (in MB) and click Shrink. Similarly, to extend a volume (increase the size), right-click on the partition and select Extend Volume; the Extend Volume Wizard will start. Here, you can specify the amount that you want to increase the partition by. Click Next, then on Finish to start the process.

It's Just The Drivers

Q I'm having a problem with the game *Gangland*. I've played the demo earlier, but now the full version I bought gives this error:

```
   ===== Console::Initialize() =====
   Compiled   Sep   27   2005   10:58:36
(release build)
   Renderer rejected: RendererD3D.DLL
   Renderer found: RendererOGL v. 1.3
(release build)
   RendererOGL::GLInitialize():  Using
Microsoft Corporation GDI Generic
   RendererOGL::GLInitialize(): OpenGL
version 1.1.0
   RendererOGL::GLInitialize():   Card
doesn't                        support
GL_EXT_texture_compression_s3tc
   Error creating renderer instance
```

What should I do? I'm using an ASUS V9400 Magic graphics card.

Vijesh Vijayan

A Your graphics card is based on the NVIDIA GeForce4 MX 4000 chipset. The error message indicates that your OpenGL renderer does not support S3TC (S3 Texture Compression). The error message also indicates that the game is trying to use the graphics renderer from Microsoft and not from NVIDIA, so your OpenGL file could be corrupt, or there could be a problem with your graphics drivers. Since your graphics card supports S3TC, we suggest you install the latest reference drivers for your card from **www.nvidia.com**. Your problem should be solved now.

Back From The Future

Q I upgraded from XP to Vista and I want to get back to XP. How can I do it without losing any of my program settings?

Manu Shastry

A Currently, it is not possible to downgrade from Vista to XP and retain all program settings. You would have to do a clean format of the partition and install XP. We'd advise our readers to dual-boot between Vista and XP (instead of upgrading) if they just want to get a taste of the new OS. Assuming Vista is installed on a partition different from where XP is installed, do the following to uninstall it. Boot into XP. Insert your Vista DVD into the drive or load the image in DVD emulation software. Run `X:\boot\bootsect.exe /nt52 ALL /force` where X is your Vista DVD drive letter. Restart the computer and you will find that the old XP boot menu has returned. Format the partition where you'd installed Vista, and remove Boot.BAK and Bootsect.BAK. That's it!

Get Help Now!

E-mail us your computing problems along with your contact details and complete system configuration to **sos@jasubhai.com**, and we might answer them here! Since we get many more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

QUESTION OF THE MONTH

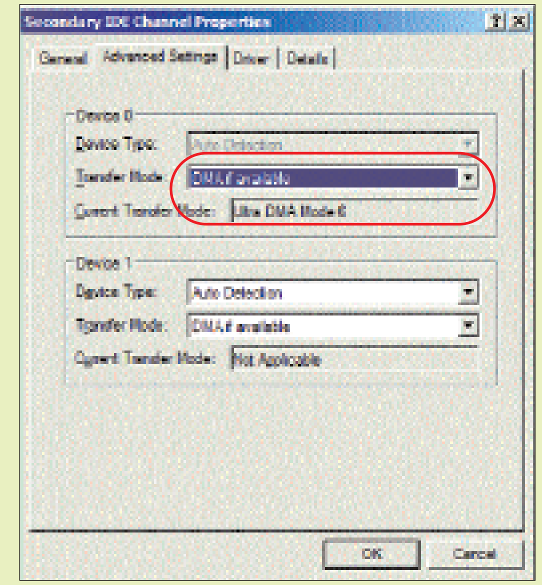
Mode Mess

Q My Sony DRU-820A DVD-Writer takes almost an hour to copy a DVD. What could be the problem?

Bhuvnesh Agrawal

A The data transfer mode of the DVD-Writer is probably set to PIO, which is a lower-speed mode than the DMA mode it should run at. To check this, open the Device Manager by running devmgmt.msc, expand IDE/ATAPI controllers, double-click Primary IDE Channel, and click on Advanced Settings. Set the Transfer Mode to "DMA if available", click OK, and restart the computer. If that doesn't help, you might need to delete that channel and restart the computer to re-detect the hardware. You might also need to repeat this with the Secondary IDE Channel if your drive is not listed. If nothing happens after restarting, you should uninstall the IDE channel from the device manager and restart the computer so it can re-detect everything on that channel. Your drive will now work in DMA mode and its transfer speed will improve.

If it doesn't, try changing the IDE cable. You might need to replace the drive if none of the above helps.



Make sure the IDE Channel is set to "DMA if available"

Machine Language

Q Whenever I restart my Windows XP computer, I get this error message: "Stop 0xC000021A".

Bhavesh Shah

A This happens if the Wbemprox.dll library is prematurely unloaded. You need to download and install the hotfix from http://go.microsoft.com/?linkid=6294451 (http://tinyurl.com/34jrgl). Restart your computer and you should find it's OK.

Unpacking The Service!

Q I recently installed SP1 on Windows XP and then used System Restore to revert Windows to the previous state. I am now not able to create a network connection.

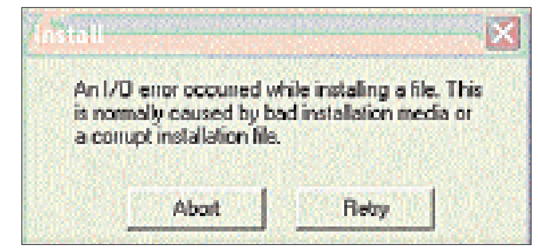
Ram Kapadia

A If you reinstall SP1, the problem will be solved, but if for some reason you don't want to install SP1, there is a workaround. Open the Registry Editor and go to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\RasMan`. Select `File > Export`, type `EXPKEY` in the File Name box, and click Save. Double-click on the `ObjectName` String Value in the `RasMan` key, type LocalSystem in the Value Data box, and click OK. Go to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\RasMan\PPP\EAP\25` and delete the key. (Click Yes to confirm.) Do the same with `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\RasMan\PPP\EAP\26`. Restart your computer. You should now be able to create a network connection.

Beep No More!

Q I want to turn off system beeps, but I don't want this to affect any other audio settings on my computer.

S Gopal



Errors like these occur when installer files are corrupt

A To disable system beeps, open the Registry Editor and go to `HKEY_CURRENT_USER\Control Panel\Sound`. Modify or create the String Value `Beeps` in the right pane and set its value to 0. Restart for the setting to take effect.

So It's A Coaster...

Q Whenever I try to install ASHAMPOO WIN OPTIMIZER 2007 from the *Digit* CD, it shows the following error message: "An I/O error occurred while installing a file." When I abort it, a message says "corrupt installation file." How do I install it?

Sunney

A Like the error message says, this happens when the installer file is corrupt or damaged, and that often happens often when the media itself is damaged.

Please e-mail **help@jasubhai.com** for a replacement.

Slo-Mo

Q I have an Athlon XP 3000+, an ASUS V82-m motherboard, and 512 MB of RAM. My problem is that *Quake 3* runs very slowly.

Shakti Dash

A Check whether the latest ForceWare drivers are installed; they are available at **www.nvidia.com**.

Also, try playing the game at lower resolutions and turn down the effects.

HOW TO

Recover Data From A Crashed Hard Drive

Here's a crash course on recovering data from a crashed hard drive!

Jayesh Limaye

Fact of life: when hard drives crash, they usually do so without warning. What results is a headache and, more importantly, heartache. But the data is usually not wiped clean from the crashed hard drive; rather, the file allocation table—which contains filenames and points to data on the drive—is what usually gets damaged. It is therefore technically possible to recover data in such situations; you only need to know the tools of the trade. The tool we're talking about is PC Inspector File Recovery—a freeware that can be downloaded from **www.pcinspector.de/file_recovery/UK/welcome.htm**.

If you've lost data on a partition on a drive other than C, just install the program in Windows. If your entire hard drive has crashed and you're unable to boot, install the program on another computer and attach your hard drive as a secondary drive on that computer.

STEP 1

Launch The Program
Launch PC Inspector File Recovery, choose English as your language, and click on the green tick button. Choose what kind of data you wish to recover by clicking on one of the three buttons to the left. If you choose Lost Data, go

Launch PC inspector File Recovery

directly to Step 6; if you choose lost drive, go directly to Step 8. If it is deleted data that you wish to recover, click on the icon at the top left.

STEP 2

Select The Drive
The program will scan your hard drive for some time for available partitions, after which it will display them. You will most likely be able to select the drive from the Logical Drives tab. It may sometimes be listed twice; select the entry containing the drive's letter.

Select the drive form which to recover data

To verify the drive's content, click the Preview button. Click on the tick button to continue to the next step.

STEP 3

Sniffing Out Deleted Files
The selected drive will now be scanned; this may take a few minutes. A Deleted folder will be displayed (with the Recycle Bin icon). You need to go through this folder to locate the files you wish to recover. You might find that the original filename has not been preserved. You can opt to search for the file in the following way: choose `Object > Find`, enter the file type, and click on the green tick to search.

STEP 4

Recovering The File
A list of matching files will appear after the search process ends. If the file you're searching for does not appear, you can use the Size and Date Modified columns to help identify it (assuming you know these details). Click on the top of these columns to arrange them accordingly, to make it easier to locate the file. Select the possible candidates by keeping on clicking on them while keeping `[Ctrl]` pressed. Keeping `[Ctrl]` pressed, right-click on them and choose Save to. Choose a location.

STEP 5

Check And Rename
After they are restored, you should try to open the files to see if they are indeed the files you were looking for. After confirming this, you can rename them to what they were and copy them to the original location later. If the files are not the ones you were searching for, return to PC Inspector File Recovery and try to search for them again.

STEP 6

Find Your Lost Data
Sometimes data is lost due to a quick format or due to system or program crash. In such cases, you should choose the `Lost Data` button (the middle button on the left) in the main screen of PC Inspector File Recovery. In this case, data is retrieved in a way similar to deleted files. Select the drive from the Logical Drives list and click on the tick button when the Select Cluster Range dialog appears. The process of identification of files to be retrieved begins; this will take some time.

STEP 7

Retrieve The Lost Data
You will see that PC Inspector File Recovery has found hundreds of "lost" files—many will be fragments. It will take quite a bit of your time to go through them all, but it is worthwhile because you have a chance of getting back precious files. Repeat steps 3 to 5 to find your file and check its integrity.

STEP 8

Find The Lost Drive
If your partition table has been damaged, you may no longer be able to view

Scanning for lost data

any drive from the affected hard drive in the Logical Drives list. You'll have to manually search for it. Click on the Physical drive tab from the Select Drive dialog, and select your hard drive—usually named fixed disk #1. Click on Find logical drives.

STEP 9

Search Within Clusters
You can choose to scan the entire drive for lost drives, or if you have some idea about where the partition was physically located on the disk, you can move the sliders to concentrate the search on that particular area. Now click on the tick button and wait for the search to complete, after which you can select the logical drive to recover your files and folders (as explained in the previous steps).■

jayesh_limaye@thinkdigit.com

It Won't Work...

Q I recently got myself a Tata Indicom Walky phone with a cable to connect it to the PC. I configured everything as told, but cannot connect to the Internet. When I try to view the modem diagnostics, I get an error.

Rajnish Mathur

A Your PC is not able to communicate with the modem in your phone. Check in the Phone and Modem Options in the Control Panel to see if you've installed a generic 33.6 Kbps model rather than a 56 Kbps modem. Access the modem properties and enter the initialisation settings as `AT+CRM=1`. This is assuming you've created the dial-up connection and are dialling the number "#777". The username and password are to be entered as "internet". In the phone, using the menu, you can access the modem settings; select the modem speed as 115 Kbps. You should now be able to connect.

Game Over—For Now

Q I have an Intel 915GAV chipset motherboard. When I start playing *The Sims 2*, I get the error message "ialmrnt5 display driver has stopped working normally", and I have to reboot the computer.

Eklavya Ashar

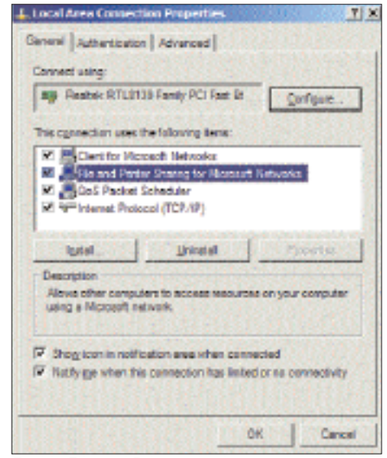
A This error is due to a bug in the Intel graphics driver. Install the latest drivers from **downloadcenter.intel.com**. If you still get the error, right-click on the The Sims 2 icon, select `Properties`, and add the switch `-w` to the end of the target field so it looks something like `"C:\Program Files\EA GAMES\The Sims 2\TSBin\Sims2.exe" -w`. (The actual path may vary depending on where the game's been installed)

Direct Connect

Q I have a cable internet connection that requires me to dial using PPPoE. I recently installed a 4-port router and configured it to dial directly to my ISP. The problem is that it is not able to connect despite my having correctly configured the router to use PPPoE and entering the correct username and password.

M Krishnamurthy

A It looks like your ISP has locked your account to the MAC address of your network card, so you can only dial through that card. First, find the MAC address of your network card by typing `ipconfig /all` in a command prompt window. Copy that MAC address. Launch the administration page of your router and search for the option to set the WAN MAC address (sometimes referred to as "WAN MAC Address Cloning"). Enter the MAC address of your network card here and save the settings. This will set the MAC address of your router to the same as that of your network card, and it will seem to your ISP's server that the number is being dialled through your network card. You will then be able to connect to the Internet via the router.



Enable File and Printer sharing

Dead On Install!

Q I tried to install the Adobe GoLive! Tryout and Adobe Illustrator Tryout from one of your DVDs. They got installed, but when I try to run them, I get a message saying the products have expired, even though I've never installed them before.

Sabyasachi Sadhu

A Some software can work in the demo version mode only for a limited period of time (like three months) from the date of release. Usually, after this period, a newer trial or demo version of the software is released. Get it from **www.adobe.com**.

Wired—But Not Quite

Q I own a cyber-café with five computers running XP connected to an 8-port switch and one server. I am not able to access any of the five computers from any one of them. I can still ping them one from the another. What could the problem be?

Abhishek Gupta

A This often happens when File and Printer Sharing is disabled or if the Guest account is disabled. Open Network Connections, right-click on the network connection being used, and click Properties. Make sure the box next to File and Printer Sharing for Microsoft Networks is checked. Click OK.

You might be prompted to reboot the computer—do so. Open User Accounts in Control Panel and click Guests. In the next window, click on Turn On the Guest Account. This should solve the problem.

Cyber-Empty-Space

Q I can connect to the Internet but I can't open any Web sites on my Windows 98 SE PC.

Sunil Bihari

A Ping any site—`ping www.yahoo.com` in a command prompt—and if you get a reply, your browser is corrupt, and reinstalling it is the solution.

If you do not get a reply, run `winipcfg`. Click on the More Info button and verify that a DNS is specified. If the DNS is blank or 0.0.0.0, the computer is not being assigned a DNS address.

Close winipcfg. Disconnect from the Internet. Double-click on Network in the Control Panel, highlight `TCP/IP > Dial-Up Adapter`, and click Properties. Click on the `DNS Configuration` tab and verify that `Disable DNS` is selected.

If this was already selected, then contact your ISP to verify if any DNS settings need to be set up. ■

Agent 001

Not Quite Prime Time

Now isn't the best time to go around looking for TV-Tuners—thus spake Agent 001

I've a good friend who recently moved to Mumbai. Being an IT guy, he'd brought along his PC and set it up here. He isn't a gamer like me, so he gets his kicks elsewhere. I'm not talking booze and discos—nothing so dramatic—he's a TV buff, and would spend his weekends back home glued to Star World.

One of his first purchases in Mumbai, therefore, was a TV... no surprises there. Problem is, he isn't at home most of the time, so he decided to opt for a TV-Tuner card or box to record his favourite serials, the ones he just couldn't miss. But after investing in a mammoth 500 GB hard drive (and the TV of course), he could only spend 3,000 bucks for a TV-Tuner. Naturally, we ended up at Lamington Road rather early in the day...

Unfortunately, I'd miscalculated, and very few shops were open upon our arrival. Well, even Agents trip up! A couple of Cokes later, we found shutters starting to open. The first shopkeeper greeted us with a toothy smile. Ahh, the joy of being first customers...

The smile done, he went on to show us a Pinnacle PCTV 50e (Rs 4,250). It's a rather bland-looking external TV-Tuner that can record directly to DivX. We were also shown a Dazzle internal TV-Tuner for Rs 1,400; however, the box didn't have any specific model number; there was just "Dazzle PCI TV Tuner".

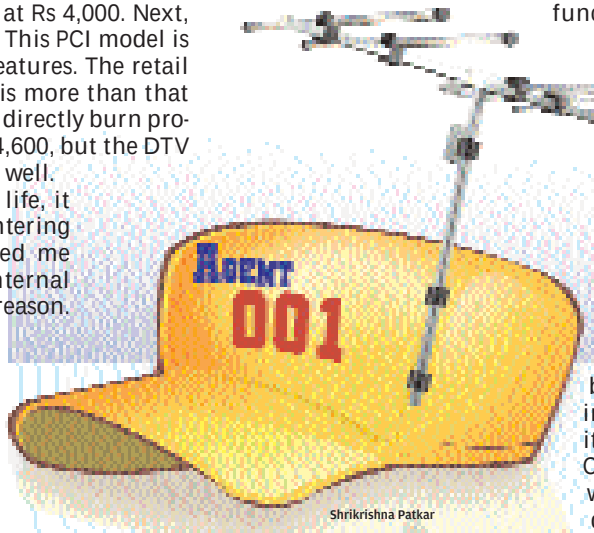
Dealer #2 showed us a couple of Leadtek TV-Tuners. One was an ultra-compact WinFast PalmTop TV, a cute, orange-coloured tuner box. The PalmTop TV has a host of powerful features including seamless playback for multiple video and audio files. It was priced at Rs 4,000. Next, we saw a Leadtek DTV 2000H. This PCI model is digital, and sports a host of features. The retail cost of the bundled software is more than that of the card itself! You can also directly burn programmes to DVDs. It costs Rs 4,600, but the DTV 2000H supports HD output as well.

Variety being the spice of life, it was on to dealer #3. Before entering the shop, my friend informed me that he would prefer an internal card, citing desk space as the reason. We came across a Leadtek WinFast TV Dongle. It was ultra-compact, a little larger than a pen drive. The voluminous feature set will go down real easy, especially when you consider its diminutive size. In fact, this miniature TV-Tuner doesn't give up any features to its much larger brethren. The remote control unit, while feature-rich, does look bland with its array of similar buttons—like some sort of control panel. It costs 4,200 rupees, and the TV Dongle will be very suitable for laptop users due to its size. The guy told me he could arrange for a Hauppauge Win TV-PVR-150 for Rs 5,100. This card has all the features you'd need in order to set up a Media Center PC.

Incidentally, the Win TV-PVR-150 is digital. I was impressed by this guy's contacts, because I remember wanting to buy a Hauppauge TV-Tuner myself a few months ago—and having given up either because people couldn't get it, or were pricing it exorbitantly. We also saw a Compro VideoMate Gold Plus M500, costing Rs 2,200. This is an older model from Compro, proved by the bundle, which although rich, contains software versions older than what's currently available. The evergreen Compro VideoMate Gold was also on display: Rs 4,500. This is a full-size PCI card. Once again, it's a previous-generation product. It seems the latest Compro cards haven't reached Lamington Road yet.

Decision time for my friend. I had filled him in earlier on the CAS (Conditional Access System) issue doing the rounds. CAS will mean encrypted channels, which a regular satellite dish cannot receive. It will ultimately prevent exploitation of consumers by TV operators who have been hiking prices for no rhyme or reason. CAS will mean investing in a set-top box and subscribing to individual channels, or a "package" of channels. For those who aren't aware, once conditional access comes into force, TV-Tuners without digital connectivity won't function properly, because set-top boxes use a digital cable. Your TV-Tuner will therefore only receive any analogue channels if they're still being transmitted. Needless to say, your TV-Tuner remote will also cease to function. You'll control channels with the remote of the set-top box instead.

Considering that digital TV-Tuners are costlier than their analogue counterparts, and that my friend wasn't willing to upsize his budget, we decided to wait a bit before investing in a TV-Tuner. Sure, the digital ones won't really be affected by the CAS decision, but my friend wasn't willing to splurge. All considered, we decided to sit this one out a bit till things become clearer. ■



Shrikrishna Patkar

Want more of Agent 001? Turn over to read his answers to your buying questions

Ask Agent 001

Luxury!

Q I want to buy an LCD TV for my room. The viewing distance will be 8-10 feet. Could you suggest which brand and size of LCD to buy? My budget is between Rs 75,000 and Rs 1,00,000 for a 32-inch (or above) TV. I'd also like to know the significance of features like Dynamic Contrast Ratio and Full HD.

Amit Jain

Dynamic Contrast Ratio (DCR) refers to the ratio of luminosity of the brightest and darkest colors that a display can produce over time. Static Contrast Ratio (SCR) measures the luminosity values simultaneously, i.e., without the time factor. Values for DCR will be typically higher than those for SCR because DCR simply cancels the effect of the room, causing equal amounts of light to reflect from the display to the room and forth. Therefore DCR values are inflated, and an LCD with an SCR of 3000:1 will outperform an LCD with a DCR of 3000:1.

Full HD simply means HD viewing at its highest possible resolution, i.e., 1080p. This equates to a progressive scanned display consisting of 1920 x 1080 pixels. The next-best thing would be 1080i, i.e., 1920 x 1080 pixels interlaced.

Samsung has some real beauties in their LCD TV range. The Bordeaux series, for one, proves that beauty isn't always skin-deep. I liked the body shape of the series; build quality is also right up there. Choose between two colours—the LA32R71W (white) and the LA32R71B (black). Both cost around Rs 70,000 (Mumbai street price).

Money Matters

Q I want to upgrade from my W550i SE to a new handset. I have zeroed in on the K790i SE for its 3.2MP camera and the loads of other features. Any other suggestions for the same price and features?

Vikas Maurya

You seem to primarily want a good camera phone. The Nokia N73 also has a 3.2MP camera, and even outperforms the K790i when it comes to camera quality. Needless to say, the N73 is feature-rich, with greater application support, mainly due to its Symbian platform. Another advantage is a better screen (320 x 240). Music playback quality is around the same. The only deterrent for you as far as I can see is the fact that the N73 will cost at least three thousand rupees more, going by today's street prices. If you're willing to upsize your budget, go with the N73, else stick with the K790i.

C2D All The Way!

Q I am assembling a PC for animation work with some gaming on the side. I am confused between two processors: the Pentium 630 and the Pentium D 820. Which would perform better? Could you also suggest a suitable motherboard?

Ganesh Badgujar

Between the two processors you've mentioned, a Pentium D 820 would perform better on multithreaded applications or while multitasking, simply because it's a dual-core. Since you seem to be going in for a brand new system, I'd suggest you scrap both these and invest in a Core 2 Duo instead. The E6300 (1.86 GHz) would easily outperform both the processors you mentioned while costing just a couple of thousand bucks more. A good motherboard to pair a Core 2 Duo with is the MSI 965P Platinum.

Ask Away!

Want a tech product, but don't know how to go about buying it? E-mail **agent001@thinkdigit.com** with your complete contact details, and he might answer them here! Please note that Agent001 only answers purchase-related questions in this space.

PSU Pointers

Q I use a 300-watt SMPS and am planning to upgrade to a 400-watt model, because I'm planning on attaching another hard drive and CD drive soon. Will a higher power supply overload my motherboard? Which brand should I look at?

Tushar Mathur

Using a higher-rated power supply will not damage your motherboard in any way. The processor, motherboard, graphics card, memory, and other peripherals only draw as much power as they need. People use higher-rated power supplies simply because power supplies perform optimally when they are under a maximum load of 60 per cent, so a 500-watt power supply will perform optimally if the load is not more than 300 watts. This is also because most manufacturers state inflated output figures. Some 400-watt power supplies may actually be capable of only 300 watts.

VIP is a good brand, known for their reliable power supplies. I'd suggest a 400-watt VIP PSU.

Wanted: A Box And A Screen

Q I have decided on the following configuration (primarily for gaming):
NVIDIA nForce 680i motherboard, Intel Core 2 duo E6600, Samsung SP2504C 250GB SATA 2 HDD, 2 x 512 MB DDR2 @ 667 MHz, XFX-PV-T73G-UDL7 (NVIDIA 7600GT), iBall Power Key Designer, Lite-On DVD-Writer

Please comment. I need help choosing a cabinet, power supply, and a 19-inch LCD monitor. My budget for the cabinet and PSU is Rs 4,000, and for the monitor, Rs 14,000.

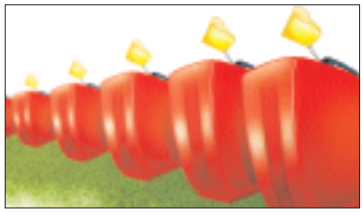
Vamsi N

Some pretty good choices there. Since it's going to be a gaming rig, I'd suggest a high-end graphics card. I'd recommend a 7900GTO or an X1900XT. If you can spend Rs 27,000 on graphics alone, the BIG 8800GTS is available, which is a future-proof option. If budget becomes a problem, I'd suggest an E6300 in lieu of the E6600—game performance won't be affected much. If you don't plan to SLI, you can consider a motherboard based on Intel's P965 chipset. I recommend the MSI P965 Platinum.

Games benefit from more memory. I suggest 2 GB of RAM—two sticks of 1 GB each; make sure to use them in dual-channel mode.

For the kind of power your system will need, I don't think you should cost-cut on the PSU. Invest in a VIP 500-watt supply at the least. You could also consider Cooler Master's 600-watt Extreme Power series. The Zebronics Peace is a good cabinet; its flashy, functional, and won't cost a bomb.

19-inch widescreens are the in-thing today. Go with a Samsung 940BW. It's the best monitor for its price, period. ■



102 Multiple Redundancies

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Tech Careers

LivinG PATTERNS

An offshoot of the Biotechnology industry, Bioinformatics is gathering pace like never before. It is still a niche industry, though

Asfaq Tapia

As the field of Biotechnology began to grow after 2001, it became increasingly clear that computers would play a big role in the future of commercial biology. Over the years, computers have played their part in decoding the human genome, drug and vaccine design, determining the bio-molecular structure of cells, and studying cell metabolism, among other things. This gradually evolved into a specialised industry called Bioinformatics.

Bioinformatics can, in simple terms, be defined as an interdisciplinary area involving biological, computer, and information sciences to manage, process, and understand large amounts of data, for instance from the sequencing of the human genome, or from large databases containing information gathered from plants and animals for use in discovering and developing new drugs. Mutation simulations and modelling of bio-molecules and biological systems is also done using the data. (Unfamiliar terms are explained in the box Indicative Terms, which might give you a flavour for what one deals with in this discipline.)

According to the Confederation of Indian Industries (CII), the Bioinformatics industry is still in its nascent stages, and is set to grow to $25 billion (Rs 1,00,000 crore) by 2011. Among other significant developments in the sector, the government of Karnataka along with ICICI invested, in 2001, Rs 5 crore to develop the Institute of Bioinformatics and Applied Biotechnology (IBAB) in Bangalore, to offer diploma courses and short-term training in bioinformatics and biotechnology.

Shrikrishna Patkar

The Bioinformatics industry today is heavily dependant on researchers who are able to work with custom software that involves data mining (sifting through large volumes of data to look for patterns and trends), downstream processing (referring to the separation or purification of biological products), and model analysis. Researchers comfortable with using Virtual Reality tools are also much sought-after in drug design and unicellular organism design.

This could be the industry for you if you are excited by the prospect of coming up with new cures for diseases, unlocking the secrets of life, and so on... and as you can expect, work here is highly research-oriented.

A Preview Of The Industry

You'll generally find bioinformatics applied in three broad cases: pharmaceutical companies that have a bioinformatics division; IT companies that have a bioinformatics wing—a small team working on specialised in-house projects for better data retrieval techniques; and companies that offer bioinformatics solutions to pharmaceutical companies. These range from research institutions, pharmaceutical companies, and chemical industries to the agriculture and allied industries. These companies recruit the bulk of the bioinformatics professionals today.

It must be noted, though, that bioinformatics is still very niche in India, with only a handful of companies carrying out research that requires the use of bioinformatics. It is primarily large companies doing outsourced work from multi-national pharmaceutical companies that recruit. Also remember that bioinformatics is an application-oriented subject and demands a clear understanding of biological and allied concepts, and that students therefore need to build a research-oriented mindset.

Money Matters

Position	Educational Pre-requisites	Remuneration (PA)
Junior Research Fellow	B.E., B.Tech., or B.Sc.	0.5 to 1 lakh
Senior Research Fellow	M.E., M.Tech., or M.Sc.	2 to 3 lakh
Quality and Data Analyst	M.E., M.Tech., or M.Sc.	2 to 3 lakh
Head Researcher	Ph.D. in your field of super-specialisation	4 to 7 lakh
Project Head	Ph.D. in your field of super-specialisation, in-depth knowledge of BioPerl and GMOD/Chado based applications	7 to 9 lakh

Syllabi

Until recently, due to the specialised needs of the bioinformatics industry, there was no fixed course one could opt for. Companies employed graduates who had completed an M.Tech. and had a little background in biology, or those who had a B.Sc. background with a flair for programming. The bioinformatics courses available today are a mash-up of the B.Tech. and B.Sc. syllabi, covering concepts in programming and in biology. These days, to get into the industry, you need to have a B.Tech. or similar qualification. This is a stepping stone into the industry, to get further; you need a Master's degree with a super-specialisation in the research area you've opted for.

Due to media hype and a rush of students wanting to take up bioinformatics courses, there are many fly-by-night colleges, not affiliated to any reputed university, that offer courses in bioinformatics. Most equipment for biotech / bioinformatics courses is expensive; it is therefore important to check for lab facilities. It is also important to check the background of the faculty members of the college you are applying in before registering for a course. If you can, speak to alumni of the college regarding the lab facilities and such.

MBA degrees specialising in bioinformatics is a new phenomenon. Since these courses have only recently started, it is important to remember that their marketability has not been proven.

Getting An Education

Undergraduate Courses	URL
Amity Institute of Biotechnology–B.Tech.	http://tinyurl.com/2vxdkf
Vellore Institute Of Technology–B.Tech.	http://tinyurl.com/3a5k74
Tamil Nadu Agricultural University–B.Tech.	http://tinyurl.com/2o6lee
Sathyabama Institute of Science and Technology- .Tech.	http://tinyurl.com/3dhd4v
Postgraduate Courses	
Pune University–M.Sc. in Bioinformatics	http://tinyurl.com/33jc93
Jamia Millia Islamia University–M.Sc. in Bioinformatics	http://tinyurl.com/3ce52d
Tamil Nadu Agricultural University–M.Sc. in Bioinformatics	http://tinyurl.com/2lzbaj
Madras University–M.Sc. in Bioinformatics	http://tinyurl.com/2olfd6
University of Hyderabad–M.Tech. in Bioinformatics	http://tinyurl.com/36tq2f
University of Madras–M.Sc. in Bioinformatics	http://tinyurl.com/2kpqqe
Advanced Diploma Courses	
Pune University–Advanced Diploma in Bioinformatics	http://tinyurl.com/3aohj8
Madurai Kamaraj University–Advanced Post-graduate Diploma	http://tinyurl.com/2p5q3k
University of Hyderabad–Post-graduate Advanced Diploma in Bioinformatics	http://tinyurl.com/2oo6m3
Bioinformatics Institute of India–Post-graduate Diploma in Bioinformatics	http://tinyurl.com/2moz69
Ph.D. Research Courses	
IMTECH–Protein Science and Engineering	http://tinyurl.com/3dq5p9
CCMB–Bioinformatics	http://tinyurl.com/2ofeyp
NII–Bioinformatics	http://tinyurl.com/2jjv73
IGIB–Genome Informatics	http://tinyurl.com/3exfgy
CDFD–Computational Biology	http://tinyurl.com/3y2oc7
IICB–Structural Biology and Bioinformatics	http://tinyurl.com/2zloyb
IICT–Research Projects	http://tinyurl.com/3dndxp

Head-starts

The computational software that most bioinformatics companies use runs on UNIX-like operating systems like Red Hat Linux and Fedora; it is therefore good to have hands-on experience with these while pursuing your graduation.

You can take up summer apprenticeship courses during the holidays or between semesters. These courses help you gain an understanding of how a bioinformatics project works, and can be an add-on to your résumé. They normally last for between three and six months. You could apply for a summer apprenticeship at certain institutions.

The Remuneration

Working in this industry requires patience and analytical skills. The ability to analyse statistical data from graphs and statistical tables is an added bonus.

According to Dr S K Mahajan, Gharda Professor of Biotechnology, Institute of Science, Mumbai, "The field of bioinformatics is demanding as well as low-paying. In spite of the number of students graduating from these courses every year, only a select few are offered lucrative placements." According to Raghothama Chaerkady, Research Fellow at McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University, a competent bioinformatician assisting in research can make up to Rs 12,000 to 16,000 as a Junior Research Fellow. With a Master's degree, working on Proteomics, mass spectrometry based sequencing, microRNA, and such, it could be Rs 40,000 per month, and at the Ph.D. level, around Rs 40,000 to 80,000 per month.

When a company first recruits you, you start as a Junior Research Fellow. Here you would be in charge of assisting Senior Research Fellows in conducting tests on preset parameters of the project. This work is, for the most part, very basic and repetitive in nature. After three years of experience, you would be eligible for the position of Senior Research Fellow. In this role, you would be in charge of suggesting the tests and research paths to follow in order to reach the goals of the project. For example: a project related to the design and analysis of DNA microarrays, with the goal being to extend an existing Java application that models, say, the behaviour of synthetic DNA under certain circumstances.

Indicative Terms

Human genome: The genetic map of the human body's DNA, including chromosomes and genes.
Mutation: A permanent structural alteration in DNA; in most cases, this refers to DNA changes done by researchers to improve an organism's chance of surviving.
Modelling: Refers to the theoretical methods and computational processing used to mimic the behaviour of biological molecules.
Proteomics: Roughly speaking, the study of proteins.
Mass Spectrometry: A technique used to determine the composition and abundance of the atoms in a molecular substance.
Sequencing: A technique for identifying nucleotide sequences in a DNA fragment.
MicroRNA: A short piece of single-stranded RNA that controls the expression of genes.
Docking: Computational exploration of the possible binding modes of DNA
Biostatistics: The application of statistics to a wide range of topics in biology, medicine and to agriculture in particular.

Though we don't actively look for students from "bioinformatics courses," candidates who have a B.Tech. or M.Sc. in any branch of the life sciences are preferred"

Dr M Vidyasagar
Executive vice president (Advanced Technology)
Tata Consultancy Services

Most biotechnology companies in India today work on techniques involving docking, modelling, sequence analysis, and advanced biostatistics. You can also branch out to being a Quality and Data Analyst, in charge of overseeing the data generated by the various tests and validating their authenticity.

After another three to four years of experience, you could qualify to be a Head Researcher—in charge of providing inputs to the project in your field of specialisation. After two years, you could aim to become Project Head. This role would require you to have in-depth knowledge in your field of specialisation, and thorough experience on the software tools used in the bioinformatics industry; you would be expected to lead—and define a roadmap for—a project that falls within the scope of sequence assembly, database design and maintenance, sequence analysis, and Proteomics.

The table overleaf lists the educational background required for each position in the industry, with an estimate of the remuneration one could expect.

Parting Notes

The bioinformatics industry will continue to evolve into a highly specialised sector that will service biotechnology companies. Solutions developed will help researchers sort and retrieve data more effectively. For the industry to grow in India, global pharmaceutical companies need to conduct their research and development activities here, rather than just doing field trials, which is mostly the case today.

The science is constantly evolving; students need to constantly update themselves on the latest trends, as well as the software and techniques used. ■

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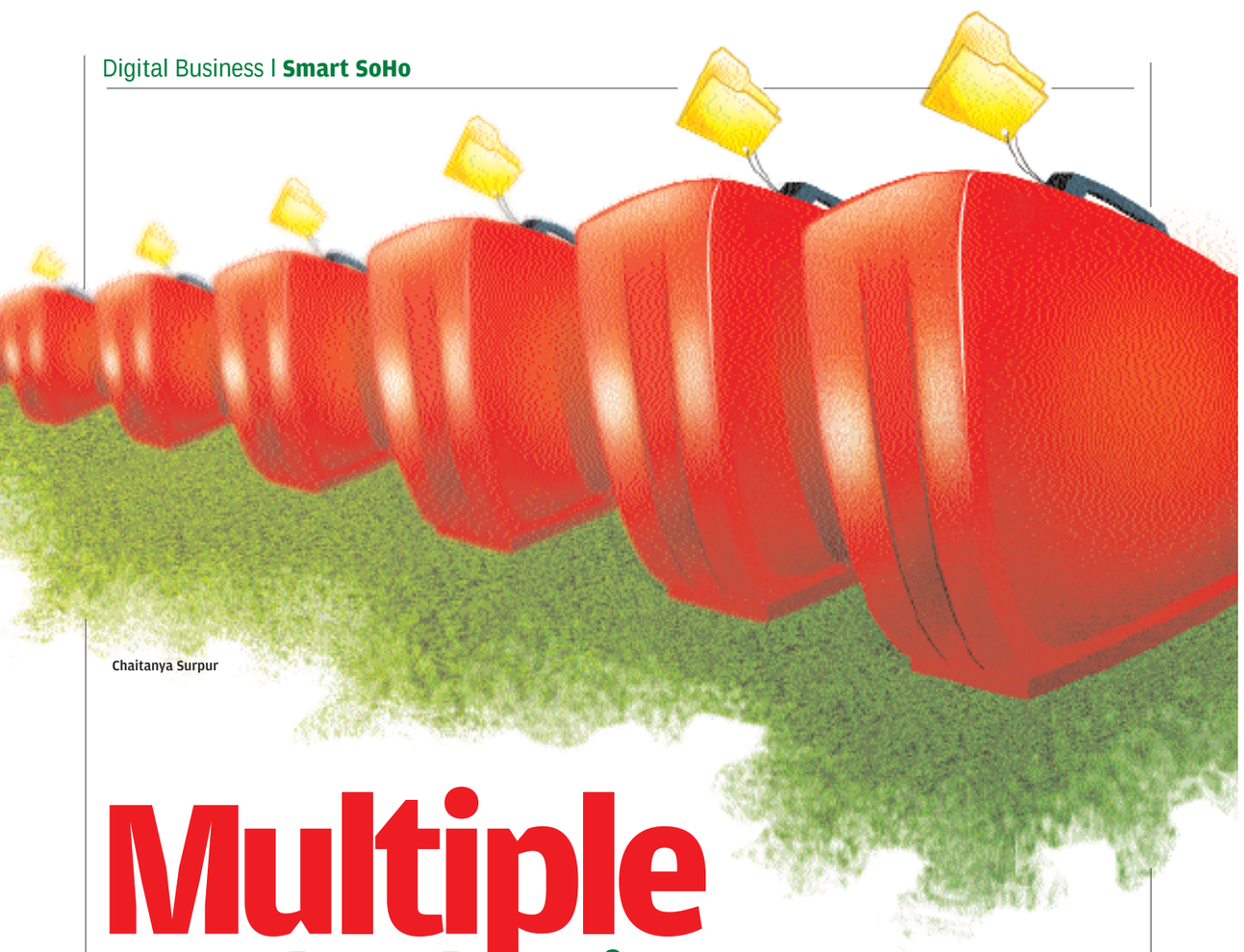


Chaitanya Surpur

Multiple Redundancies

Data today, gone tomorrow. That's why you always need plan B

Bhaskar Sarma

Most of our personal and business data exists as bits and bytes stored on optical media and hard disks in computers. We live in a digital world. The robustness of computers, though, is still often thrown into question—think virus attacks, system failures, and hardware malfunction. It's therefore important not to keep all your data in just one place: back up.

Traditionally, the process of backing up valuable data has been glossed over, probably because of the absence of affordable storage and the lack of easy-to-use software. However, this doesn't apply today, when you have storage available at dirt-cheap prices as well as great software—some of which are free. Such software has a plethora of features that enable you to set up a backup system once, and then forget about it; and they are suitable both for individuals and businesses.

The Basics

If you're convinced about the necessity of data backups, you need to sit back and understand your requirements. The frequency of generation of data will determine your choice of software, as there are some upper limits to how frequently you can back up. Likewise with issues of retrieving older copies: some software allow you to store multiple versions of the same files, while others overwrite older versions and keep only the latest version in storage.

Data backup methods have evolved over the years. Until about a few years ago, most SoHos used the older and cheaper way of data backup—optical media (CD / DVD). But though CDs and/or DVDs are still useful for one-time backups, they can be a pain in the neck when regular backups are needed. More user-friendly storage would be external USB hard drives. Many drives feature the "one-touch backup" option; they come with software that automatically backs up data at the press of a button.

Image Or File?

Like hardware, data backup software comes with varying levels of features and complexity. Backup software basically performs two types of backups: image and file. Image backup is when you restore data along with all the settings of the system. The software creates bit-for-bit copies of the source disk—something like the System Restore feature in Windows. This is ideal when you're not planning on upgrading your hardware, or when you need to get back up and running minutes after a disk failure. However, image-based backups typically take a lot of time, which might mean that the user can perform less frequent backups.

File backup, on the other hand, is the conventional copy-and-paste (rather, copy and burn to storage media). The software copies the selected files on demand, or on a predetermined schedule. This is fast, and is suitable even when you install new hardware. The problem with file backup is that if and when the OS crashes, you will have to start installing everything—Windows, device drivers, and your software, before you can use the data. Then again, there is the chance that you might just forget to back up an important new document because it wasn't in the usual source folder for the backup software.

A third type of backup solution is offsite, online-based backup. For a price, storage companies allow you to automatically back up data to their servers. This works well if you have a broadband connection. Online backup is file-based; it takes less time, and less space is utilised because only the data is copied (without any settings).

Software

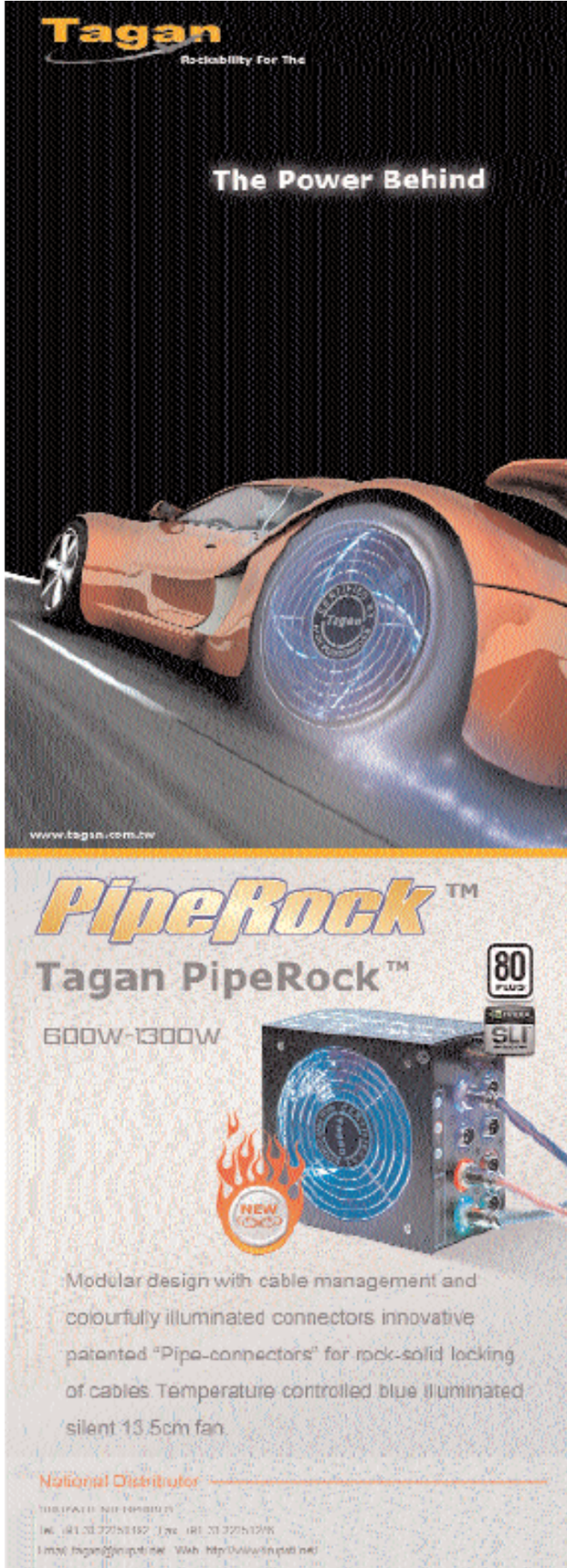
When it comes to software, customers have a number of choices based on budget and requirements. Data backup and recovery software comes in both paid and free versions. We'll look at both categories.

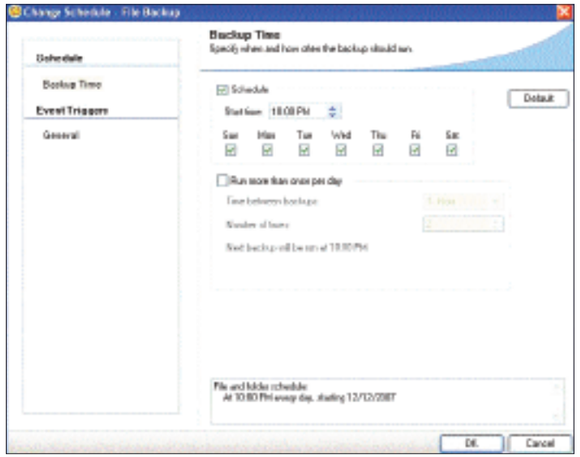
Norton Ghost 12

This is Symantec's data recovery software; it falls in the image backup segment. It costs $69.99 (Rs 2,800); find a free evaluation copy on this month's DVD. Norton Ghost works on Windows and does a comprehensive backup of your hard drive. You can also back up individual files and folders. Restoration is as easy as clicking a button. However, it is a resource hog. Ghost analyses your hard drive when you start it, so startup times depend on the amount of data on your hard disk(s).

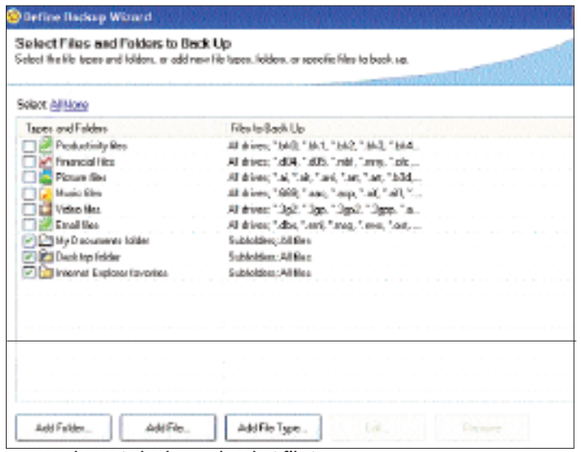
Some options with Norton Ghost are the scheduling of backups and use of password protection on the backed up files. It creates periodic restore points, like System Restore does in Windows. Norton Ghost does not need to be running for a scheduled backup to start: it will start all by itself. It even allows

Security options in Ghost





Schedules can be set for backup, at your convenience



You can choose to back up only select file types

you to back up more than once in a day, which is ideal for a busy day at office. Backups, especially image-based backups, are a performance hog when they run, and Norton Ghost has a Progress and Performance feature which allows you to slow down the backup if you are in the middle of something. You can even back up systems that are dual-booted.

The backup sets can be burnt onto CD / DVD or transferred onto a USB drive. Security for your backups is rock solid—the files are protected by 256-bit AES encryption, one of the best methods. Apart from scheduled backups, backups can also be triggered by user-set events like the installation of a new application, or when the size of the backup source folders increases beyond a certain limit. Multiple computers running Ghost can be controlled remotely from a single machine. (Each computer needs to have an unique license key, so this proposition would be very costly if your network is large.)

Restore times depend on the amount of data that is imaged. However, the process is easy—it is basic point-and-click. If you have no time to do an image backup, Ghost will let you do an individual backup of files and folders. It will do incremental backups when space is a concern. The backup files can be searched either through Ghost's inbuilt feature, or synced with Google Desktop Search.

Norton Ghost is a costly choice, but it does it job pretty well. The documentation is pretty detailed, and technical support can be obtained via e-mail. For more details on how to use Norton Ghost like a Pro, check out this month's 30 Minute Expert in our Tips & Tricks section.

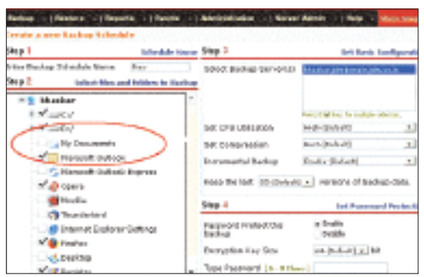
Vembu StoreGrid Backup Software

For those businesses that run more than one computer, this is a godsend. Each computer on the network usually has some free space. Vembu StoreGrid allows you to back up data across an intranet utilising this free space. Find the software on our August 2007 DVD. The free edition runs on Windows, though the paid versions run across all platforms.

Unlike Norton Ghost, StoreGrid runs very well on systems with average system specifications. The free version does not have all the features of the paid one, but it does the job of backing up your files. Some nice features are the ability to do incremental backups by default—StoreGrid will back up changes each time they appear in the file, but it won't save multiple copies of the same file. Rather, the changes will appear in a single file, which results in space and time savings.

If you've spent hours tweaking your Registry for optimum performance, those changes can be saved, too. User data is encrypted up to 448 bits using the Blowfish algorithm, and is password-protected. StoreGrid supports hardware like Network Attached Storage (NAS) and external hard drives. The Pro version has the feature to back up files via secure FTP (File Transfer Protocol). It also stores Outlook, Outlook Express, and browser settings and will back up data to Microsoft SQL and Exchange Server.

The interface is intuitive, and setting up the software is easy. There are three modes of configuring the software. The first is client / server


The browser-based console in Vembu

Configuring Vembu for a network is as simple as adding IP addresses.

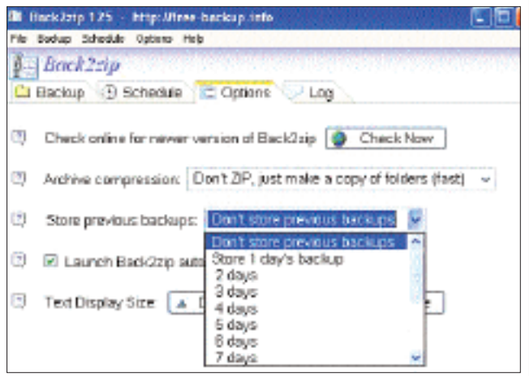
mode, in which the computer can be used to store backups of other systems and also back up its own data to others. The other two options are client and server: systems configured for the client mode cannot have backups of other systems stored on their hard drives, while systems configured for server mode cannot have their data backed up elsewhere.

Control is through a browser-based interface, and you need to type **http://localhost:6060** into your browser's address bar to start the console. Backups can be scheduled on a calendar, or set up so that every time a file is updated, it is backed up. For users who use both a laptop and a Desktop, StoreGrid can be configured such that data on specific folders on laptops will be automatically backed up on connecting to the network.

Back2Zip

For those on a budget, Back2Zip is a simple and effective data backup software. It is freeware; find it on this month's CD.

This is a no-nonsense, no-frills software. It sports an extremely simple interface with a minimum of options, but does all that you'd expect it to do. It can either do a simple copy, or compress the files into zipped folders; the level of compression can be set to low or high. (The higher the compression, the slower the backup.) Back2Zip backs up whole files and folders; it is not image backup. The duration between successive backups can be set from 20 minutes to 6 hours; the 20-minute option is ideal when you are working on important documents.



Multiple backups of the same file can be archived by Back2Zip.

This software leaves a very small footprint. The compression method used is the industry-standard ZIP and ZIP-64.

Over The Wires

Online backup is typically a costly option for individuals and small businesses because of recurring costs, but you can get some good bargains if you hunt for them. Some companies like IDrive (**www.idrive.com**), Mozy (**http://mozy.com/**), and Carbonite (**www.carbonite.com**) offer packages tailored to the needs of individuals and small businesses. The offerings are comparable in terms of cost. IDrive, for example, offers 2 GB of storage space for free, with unlimited space for personal use at $49.50 (Rs 2,000) per year, and 50 GB to 500 GB for businesses at yearly rates starting from $99.50 (Rs 4, 000). These services typically require the installation of a client on the local machine; this is used to control settings and options. They offer the full range of features, right from scheduled backups to encryption—just like those offered by Desktop software.

At The End Of It

For a SoHo user, the best solution would be to use backup software and back up data to another hard disk, preferably an external drive. It is not advisable to use another internal disk to back up the data, as both data and backup could be lost at the same time.

External hard disks are pretty affordable these days—a 160 GB drive, for example, costs between Rs 4,500 and 6,000 (internal hard drives of the same capacity cost about Rs 3,000). Since you can carry all the data with you, you have yourself a great solution.

Online backup can be expensive or affordable depending on your budget, needs, and connectivity. It's definitely worth considering. ■

bhaskar_sarma@thinkdigit.com

Online Services Vs. Software Suites

How open are you to using an online office suite for your daily work?

Overall, our IT team is now more productive

Neev Technologies provides software services specialising in Web-related solutions. They are involved in the development of rich Internet applications using AJAX, Flash, Java/J2EE, Ruby on Rails, .NET, and others.

"In general, we believe the world is moving more towards online services. Prices of storage and bandwidth are both following Moore's law and are falling rapidly. It has finally become feasible to be always connected, have all your documents online, and free yourself from being dependant entirely on a machine. We have been in this mode for around four to five months.

Saurabh Chandra
CEO and co-founder,
Neev Information Technologies

"People can collaborate easily, do simultaneous edits on shared docs, and are not dependant on one machine."

"Several reasons make online services enticing. There's no need to buy hardware—hardware brings with it so many costs—air conditioning, space, IT operations, electricity, racks, and if you add up everything, it's significant. For our company, the cost benefits were secondary, though; the most important benefit was time saved, which is the most expensive resource for a young, growing company.

"It was easy, since people are used to online applications these days. We still haven't been successful in optimally exploiting the potential of complex documents, presentations, and spreadsheets, but simpler spreadsheets or documents are so much better online since you can collaborate easily. We haven't done a quantitative analysis, but qualitatively, there has been a substantial improvement.

"Overall, our IT team is now more productive, since common shares or mail servers need not be managed. The number of servers in the company has been kept to a minimum. The major limitations are in the creation of documents like proposals, specifications, and costing sheets. Online suites have some way to go in those areas.

"Online office suites would be apt for new organisations where inertia is low and the (younger) staff is more eager to use such apps, since they use so many other online services anyway."

"Our offline suite has helped us directly improve productivity"

GlobalLogic, Inc. offers full product development lifecycle services to start-ups as well as emerging and established tech companies.

"At GlobalLogic, we've been using Microsoft Office for the last five years, and our experience with it has been very good so far. Although it is termed "productivity software," it has become an important tool for our day-to-day business operations.

"Every company has different IT policies, but they use the popular Office software suite to remain in sync with others. The common Office suite acts as a tool for easy communication with most of our clients while working on their projects. The suite has helped us directly improve productivity, which has indirectly increased our profitability.

"The main limitation of the Office software suite is its incompatibility with different office suites."

Sanjiv Kumar
Senior Manager IT
GlobalLogic, Inc.

"Besides that, it is also helpful in database management, documentation and inventory management, which form an essential part of our development processes.

The main limitation of the Office software suite is its incompatibility with different office suites.

"By using the Office package, various functions like communication through e-mail and Word documents, setting up meetings, presentations, preparing complex spreadsheets and so on, have become very systematic and organised. These software packages have fuelled the routine activities like the preparation and maintenance of project status reports.

"The main limitation of the Office software suite is its incompatibility with office suites like OpenOffice, StarOffice, and Lotus SmartSuite, which are used by various companies. To fix this issue, we have to use the same office suite that our clients use.

"We would highly recommend the use of offline office Suites to anyone, as they substantially improve productivity. It helps with day-to-day activities, and also helps stay on a common platform with clients."

As told to Samir Makwana
(samir_makwana@thinkdigit.com)

Touched by Tech

Eager Learners?

***Digit* went to Khairat village near Mumbai, the pilot site of the OLPC project in India**

Asfaq Tapia

You've heard almost too much about it in the news—now here's a little first-hand report: the One Laptop Per Child (OLPC) association is a non-profit organisation that was formed by faculty members of the MIT Media Lab in Delaware in the United States to oversee the construction of an affordable laptop for children; the laptop was christened the XO. The organisation is supported by industry bigwigs like AMD, Google, eBay, Red Hat, and Intel, among others. Each of these companies have donated approximately 7 crore to the initiative.

Chaitanya Surpur

The OLPC project revolves around five core principles, including the fostering of the idea of ownership in children between the ages of six and 12, by providing them with their own laptops. These would have hardware and software designed for them, in keeping with their age. The project aims at promoting the constructivist way of education by donating laptops to needy schools, for free, all over the world, whenever possible, and allow them to connect and share ideas using free and open source tools.

In India, the OLPC project is supported by Reliance ADAG, which takes care of the logistics and provides the resources necessary for implementing the project in villages and small towns. That apart, the OLPC project works closely with the Digital Bridge Foundation—created by the Dhirubhai Ambani Trust—to work with interested organisations, NGOs, and volunteers in India to identify and sponsor needy schools.

The first school to be sponsored in India is Khairat School, 40 km from Navi Mumbai, close to the Mumbai-Pune expressway. We wanted to take a look at what things were like at the school now that the laptops were there, and we wanted some views and first-hand information from the people behind the project. We were half-suspecting that the laptops would just be gathering cobwebs; however, what we saw was quite different. So how exactly is this project making an impact in the lives of the children in Khairat village?

The Visit

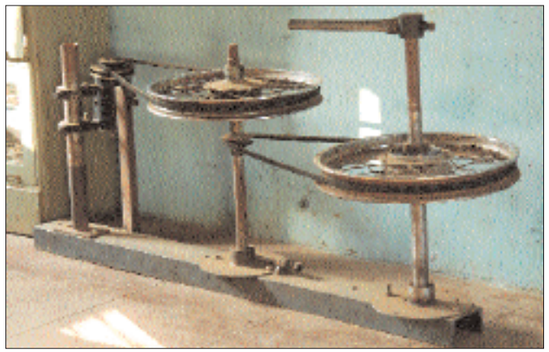
The Khairat School comprises classes (standards) I to IV, all in one room. The XO laptops were donated to the school in October last year; the children had had some time to explore their laptops by the time we met them. The instructional material is prepared by the only class teacher of the school, Mr Surve, but Manusheel Gupta, Technical Consultant, One Laptop Per Child Inc., says they have been approached by a number of organisations interested in sharing the curriculum they've developed.

It's interesting that the students are given a free hand to explore and discover their XO. When we were at the school, we saw many students taking photos and video clips of us!

We saw quite a few animated clips that Mr Surve had prepared—on various topics such as the earth's orbit and the water cycle system—which were distributed to those in the class on their XOs. The laptops act as individual nodes and create a wireless network, also known as a mesh, when two or more XOs are in a 1 km radius. This can be used to chat and transfer files without the need for an Internet connection. We found Surve using the chat application innovatively by asking the class a question that required a written reply. The students would reply via the chat tool. The kids are taught how to write Marathi words in eToys, an application similar to MS Paint, and they complete their homework on Write, an MS Word-like application. According to Surve, the students are now eager to come to school because they get to learn something new about their laptop every day, either from him or from their classmates. Parents, who were earlier not interested in sending their kids to school, have changed their attitude because they know that their kids are getter a good level of education, thanks to the XO.

There are, however, hurdles to overcome. Foremost amongst these is the availability of electricity, which, of course, is needed for charging the laptops. There are plans to get solar panels for recharging the batteries. There also happens to be a contraption to aid in recharging

There are plans to get solar panels for recharging the batteries. For now, the laptops are recharged using a contraption that turns cow power to electricity



The Cow Power charging device, stowed away for later use

the laptops, which has been developed using local materials and runs on cow power! A cow moves in a circle, driving a system of belts and pulleys connected to a dynamo to generate power to charge all the laptops. The dynamo is the one used in Fiat cars, very commonly seen as taxis in Mumbai. It takes one to two hours to charge all the 20 laptops in the village simultaneously. This is possible due to the extremely low power consumption of the laptop and the robust power supply built into it. The contraption is the brainchild of Arjun Sarwal, an OLPC volunteer.

The XO has a robust frame, but we noticed a few laptops without antennas, and two non-functioning ones. The OLPC volunteers who accompanied us said they would be replaced. We also saw that the keyboards were in English; this might, we thought, initially hinder students from working on the XO; plans are under way to create a keyboard with keys in the Devanagri script, but it's not clear when it will be introduced.

The laptops the students have been given are early prototypes of the XOs available today, and are not likely to be replaced, though.

Q&A

We were looking to get some questions answered by the OLPC India team. For example, we wanted to know what the roadmap for the programme was, how they were planning on taking the programme to other parts of the country, and so on. The questions below were answered by

Manusheel Gupta (MG), Technical Consultant, One Laptop Per Child Inc; Sumit Chowdhury (SC), CIO, Reliance Communications; Carla Gomez Monroy (CGM), OLPC India team member; and Amit Gogna (AG), OLPC India team member.

What is being taught in Khairat School using the OLPC laptops? Is there any courseware available for it?
AG: We're working on a booklet for teachers with a basic introduction to activities on the XO. It's too early to talk about courseware. The XO gives teachers the liberty to create projects and use various "activities" that suit their needs as they go about with their daily curriculum.

How long do the laptops have to be cranked before they are fully charged?
MG: We have several research groups looking at different human-power solutions, including a hand crank, a foot treadle, a yo-yo, and a pulley system. Our goal is a minimum of a 1:10 ratio of "cranking"—one minute of cranking should give you 10 minutes of use. The XOs can also be charged using a solar device, which is a good solution for India.

AG: The laptops currently shipped to us do not come with the crank mechanism. They get charged using an AC adaptor. In addition, one student at the school uses solar panels to charge his XO.

SC: We do not have laptops that have to be cranked. Getting more solar-powered battery chargers seems to be a more effective alternative.

The XO is aimed at students of what standard (or class, or grade)?
CGM: It is targeted at primary school children. In most countries, children start primary school at the age of five. However, in some schools, there are children who could not start school at that young an age, which means that in some cases we have children as old as 15 or 16 in primary school.

How do you plan to introduce the OLPC concept in classrooms across India, where the average head-count per class is 60?
SG: We will look to adopt entire schools or communities with the help of the Digital Bridge Foundation—comprising corporate partners, non-profit organisations, ministers at State level, and most importantly, interested volunteers—and try to provide laptops to all the students.

AG: At present, we intend to start with rural schools. We are in talks with various state governments, NGOs, and corporate bodies to assist us. We are building an ecosystem for the collection of funds, and are working with educationists and interested volunteers to create educational content and plan for its deployment into the system.

CGM: The issue is not only the size of the class, but also how the laptops are used to foster the children's learning.

Don't you think that donating only to governments is impeding the progress of the project?
MG: Our goal is to reach the rural children of developing countries. Dealing with governments makes this process efficient. However, this is not the only strategy that we are adopting. We have various running programmes—like "Give 1 Get 1" and "Give Many," where the purchase made by an individual or organisation benefits rural parts of the world. You can find more information at **http://tinyurl.com/yo4s3h**.

CGM: The idea was to have governments sponsoring for their people. In most countries, governments run the entire educational system, especially for public schools. It is easier to work with one well-established and influential entity in a country than to create ecosystems in each country to make it happen. That's why the first approach was through the governments.

"The XO laptops are aimed at children in specific age ranges, and contain activities tailored for them. It would be unwise to compare it to the ASUS Eee"

The students just can't get enough of the XO

The landing cost of the XO in India is about Rs 8,500. Taking that into consideration, don't you think the ASUS Eee PC is a more viable proposition? Though it does not support the ability to create mesh networks on the fly, it supports an interface that teachers are familiar with (MS Windows)...
SC: We believe in following the constructionist approach to teaching. The XO laptops are aimed at children in specific age ranges, and contain activities tailored for them. It would be unwise to compare the two.

AG: Comparing XOs to other laptops defeats the whole purpose. Remember, we are targeting young minds and want to create a system that triggers their thinking and creative abilities and not one that turns them into experts at Word, Excel, or PowerPoint. Some key features that stand out are that the laptops are very sturdy, consume low power, and foster collaborative learning through the mesh network.

What happens if a student says a laptop is lost? Do you provide for a replacement?~
MG: That depends on the definition of "lost." If a laptop is stolen, the security mechanism enabled on the laptop will disable it within hours.

AG: The kids are given some basic instructions about handling the laptops, thus minimising the chances of it getting lost. Having said that, some laptops are needed as spares for compensating for rough handling by the kids.

Earlier in the year, there were reports of students in some countries being caught viewing pornography on their XOs. What has been done since to combat that problem?
SC: The porn menace can be easily solved in India. Most rural villages do not have access to the Internet. When we do provide them with Internet access, we can have filters installed to block pornographic and malicious Web sites.

In one of his mailing list posts, Gogna said: "OUR OLPC MESH NETWORK is going to set its NODES all across the NATION." Does this mean that Reliance ADAG will provide the backbone network connectivity for the OLPC project in India? If yes, by when will this be completed?
MG: We're glad to have seen the best support from Reliance ADAG in the first OLPC pilot project conducted in Khairat School. We don't know the answer, and will take some time depending upon various parameters. We'd be happy if Reliance ADAG provides us with the networking services.

AG: That statement was much more of an analogy than fact. What I meant by "OLPC Mesh Network" was the formation of the ecosystem for the project to spread across various parts of the country, acting as nodes.

CGM: The analogy comes from how the actual Mesh Network of the XO laptops works. The XO laptops can connect to each other (without being connected to the Internet) and thus collaborate on all the different software applications ("activities"). The XOs can also be nodes that replicate the Internet signal among them, in case only one of them has access to the Internet. They can do it even when turned off.

What are the goals (and roadmap) of the OLPC project in India?~
MG: The OLPC project in India and all around the world aims to revolutionise the way we teach children. We hope to reach the remotest parts of India by means of the "Digital Bridge Foundation," comprising corporate partners, non-profit organisations, Ministers at the state level, and most importantly, interested volunteers.

AG: We also intend to reach most villages and towns across the country.

The OLPC project seems to have started off on the right foot in India. There are loose ends, however; foremost amongst these is the problem of creating awareness about the project. The OLPC team is indeed working with state governments to provide support to schools in Gujarat and Kolkata. We'll be keeping our eyes open. ■

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CRYSIS

August 7, 2020. An asteroid crashes on Lingshan Island in the Phillipean Sea. August 14, 2020. A distress call from a group of archaeologists who were investigating the crash zone is intercepted. It seems the area is swarming with Korean troops. An artifact of unknown origin has been uncovered from the crash site, and the scientists have been detained to analyse its properties. A few days later, you and your elite team are sent to rescue the scientists, and find out what the heck is going on.

Things get plenty nasty after you see a teammate who's been torn to shreds by some Unknown Entity.

Essentially a "sandbox" game, *Crysis*' brilliance lies in its simplicity. Huge levels, missions and complete freedom—do as you will! Your Nanosuit is your best friend, and will give you an array of powers—from boosting your armour during fire-fights, to cloaking you for stealth kills and recon and increasing your speed or strength. The suit runs off an energy pack, so you won't be able to use these powers indefinitely—run too fast in stealth mode and your power meter will drop like pins in a bowling alley. Weapons and weapon mods like scopes, laser sights, and damage modifiers are aplenty.

Enemy AI is ferocious, even on easy settings. They'll flank you, grenade you and take pot shots at you from behind cover. They'll also (quite irritatingly) call for reinforcements. Although your suit makes things easier, you'll be surprised how quickly your health and armour nosedives if a couple of Koreans catch you in their sights.

The level of detail that *Crysis* achieves is nothing short of incredible. Lush jungle environments come to life, dappled sunlight through trees and the corona effects of dust and fog will dazzle you. Battles are spectacular, with smoke and flame spewing from weapons, debris and concussions from explosions—all extraordinarily life-like. The environment's completely destructible too: imagine machine gunning a palm tree to have to fall on a couple of opponents and crush them! Very immersive, and very, very realistic, I say.

The only minus point—*Crysis* eats most CPUs and GPUs for breakfast. In fact, if you want to experience *Crysis the way it's meant to be played* (no pun) then you better have a GeForce 8 series or a Radeon 2xxx series card—preferably two! It'll be worth the upgrade.

The long and engrossing storyline has three distinct parts (no, we're not going to spoil it for you). The multiplayer component isn't much with its paltry selection of maps, but the single player experience is frantic fun. Genre defining? Yes! Genre *re*defining? No. *Crysis* takes the best components of *Far Cry* and adds a few of its own—which isn't a bad thing, although there's nothing in the way of path-breaking differences.

I have two bits of advice: upgrade, and play this game...

michael_browne@thinkdigit.com

Rating: 8/10
Developer: **Crytek Studios**
Publisher: **EA**
Price: **Rs 1,000**

digit GAMING PC
XFX GeForce 8800 Ultra,
Intel Core 2 Duo E6600,
4 GB DDR2 RAM

W3bster Says w00t!
From the online gamers' lingo, the word 'w00t'—an expression of joy—was crowned as Word of the Year 2007 by Merriam-Webster Inc. The entry in the dictionary will reflect thus, and is the first time l33t language has made it into the world of "propah" English.

Audiophiles Are Pirates
According to the Recording Industry Ass. Of America (RIAA), ripping personal CDs to the MP3 format on your PC is copyright infringement—even the possession of such copies could be unauthorised and illegal. This means audiophiles backing up the digital copies of their CDs are pirates. Play safe, now!

Escape

PAY TO GET SPAMMED

Exploring Charted Territory

You've won a lottery... Get a free iPhone... Resize your manhood... The bigger the better... You can easily recognise these as the subject lines of the delete-worthy mails in your Inbox. However, intriguing subject lines do entice a select few idiots into opening the mails—in case you didn't know.

Creating good spam filters to tackle such mails has been the agenda of many security companies, working with Web-based mail service providers. McAfee recently decided to think outside the box; the company said they would be hiring volunteers from the UK and the US for a thirty-day spam analysis. The research has been dubbed "Super Spam Me." The distasteful thing the volunteers would have to do is to reply to the spam messages; this act will supposedly help the researchers figure how that will affect the flow of spam.

The project, if one may call it that, will only include a few paid volunteers.

Here's the first bit of hilarity: applicants would have to send an e-mail to the company that oversees McAfee's PR work. Seeing as the job (namely, to reply to spam messages) is easy to perform, there will doubtless be thousands of volunteers (people tend to like money). The poor slobs will now receive more McAfee PR mails than other spam, we can bet.

In case you haven't figured it already, the second point here is that everyone knows what's going to happen. When you respond to a spam mail, you're going to get more spam—for those not in the know, this is because the spammer gets to know that yours is a valid, active e-mail address. So what's with the bit about analysing how the flow of spam would be affected? If you can guess, if we can guess, McAfee can guess, too—more spam, period.

The deal, evidently, is this: get paid to get more spam—from your spammers as well as from us. Quite normal for a regular Web company to be offering something like this—but not quite normal for a company that should be spending its time making spam filters.

PRIVACY WOES

No more Pokey-Pokey!

Whether it is to spy on a cheating husband or to probe into a murder, social networking sites have become a major source of investigation leads. In the recent past, even news dailies have started looking in on online social communities for people involved in various crimes.

Mark Zuckerberg, Facebook founder, had a heart attack (14 December 2007) when he learnt that his personal documents and information were floating online for free download. (Actually, we're just speculating—about the heart attack and the date, that is.) His application to Harvard University—which carried his social security number, the New York address of his parent's house, and also his girlfriend's full name, was available to anyone with an Internet connection.

What happened was that a freelance reporter, in an independent magazine called 01238 (yes, that's what it's called) wrote a story "poking" a conversation about the suit filed by ConnectU.com on Facebook for stealing their idea. (Yes, we know it's complex, and we'll leave out further details because (a) You might not understand them, (b) They're not interesting, and (c) We don't understand them ourselves.) At the end of the article were documents like Zuckerberg's correspondence with Harvard, Facebook's cash-flow statement for 2005, etc.

Find out more at **http://tinyurl.com/2w9w9p** (don't blame us if the article's been removed).The original documents that carry Zuckerberg's details have, naturally, already been removed. As it stands now, The Magazine Whose Name Contains No Words might face serious legal action...

But do you care? (We don't). The point is, when the owner of a social networking site cannot prevent his privacy (and a lot of it) being violated online, how can users be comfortable with putting up personal information on social networking sites?

Possible morals of the story: (a) Never trust anyone on the Internet. (b) Magazines with no letters in their names can sometimes be really stupid. (c) Reaffirm your belief in Scott McNealy's wisdom ("You've got zero privacy anyway...")

EGO-SURFING

Where Do I Stand, Virtually?

Google's search function has all but crippled humans. From recipes to research, people have stopped thinking; they Google stuff. (It might well be eventually proved that the average human neuron has shrunk in length by 40 per cent, that its shape has changed to vaguely resemble a "G", etc.) Very helpfully, all those billions of searches don't vanish into the digital void: Google's Zeitgeist comes out with statistics about the most searched-for terms. At the end of each year, we get a clear picture of what the year was like in terms of search (and therefore popular culture). The 2007 year-end Zeitgeist says the most popular search terms were iPhone, Transformers, Heroes, Facebook, and Anna Nicole Smith. (Most of which are guessable.)

Whatever Happened To...

The Semantic Web

The Semantic Web is an idea that promises to make Net-connected computers understand human language. When we search for information on the Net or files on a computer, we enter a specific set of keywords; with the Semantic Web, if you enter a search query saying that you want to book flight tickets for Mumbai to Bangalore at the lowest possible fares for the last flight on Sunday, the computer will automatically sift through all the data and present to you the best result—essentially, better data retrieval and more accurate results.

According to Tim Berners-Lee—the inventor of the Web—and his colleagues at the World Wide Web Consortium (W3C), the Semantic Web will make use of detailed metadata present in documents to identify and tag each and every file on a network. This tag will then work with other technologies to further categorise the document and its contents.

The idea seems brilliant, but there are problems galore. It is practically impossible for the entire Web to be made semantic, because the documents on the network today do not contain detailed metadata, and modifying them in the future is an insanely formidable task. But when you consider that Berners-Lee has been actively working on this for the past decade, you start to wonder what's been happening to it!

Win!

My Desktop

Lakhya Jyoti Nath, Sonitpur, Assam
How he did it:
It's confusing—is he running Windows? Is he running Linux? Both? What Lakhya's done here is a variation of an old trick—customised his Windows XP desktop to his liking and taken a screenshot on it. He then fired up SLAX from our December 2006 CD and applied the XP desktop as a wallpaper! So simple, yet so befuddling.

Send us your desktop with a description of how you made it to **mydesktop@thinkdigit.com** with the subject **"My Desktop",** and tell us your postal address, too.

Participate in this contest and win next month

.net Interview Questions
by Nagaraju B
Published by WILEY-INDIA

DigiPick of the month

Please open the door to your Windows

Last month's winner:
Benoy Somanathan
Chennai

Participate and win next month:

Beginning Access 2007 VBA
by Denise Gosnell
Published by WILEY-INDIA

WIN!
Send in your entry and you could win an exciting gift by sharing an amusing picture with a tech angle to it. The picture should have been shot by you, and should not have been published anywhere earlier.
E-mail your picture with **"DigiPick"** in the subject line, mentioning your postal address, **on or before the 20th of this month** to **digipick@thinkdigit.com.** One prize-winning picture will be published each month.

People Who Changed Computing

The Communicator

You don't gawk at people around you when they use their mobiles, but it was a novel experience for New Yorkers when they saw Martin Cooper talking on a phone while walking along the street on 3 April 1973. At the time, he was head of R&D at Motorola; he made the first cell phone call to Joel Engel, his counterpart at competitor Bell Labs, on that

Martin Cooper

definitive April day. The mobile that Cooper used was a clumsy affair, though, a big as a brick and weighing almost a kilogram.

Portable phones were not new; there were already car phones, using which one could place a call from inside a car. But the concept of a portable phone was novel. An avid Star Trek fan, Cooper says he dreamed up the idea when he saw a character talking on a wireless communicator. And we call TV the Idiot Box...

Cooper is also known for Cooper's Law, which states that the number of conversations that can be carried out in a particular slice of the radio spectrum doubles every 30 months. An electrical engineer by training, he began his career with the US Navy and later joined Motorola in 1954. Cooper won the 2003 Wharton Infosys Business Transformation Award for his contributions to telecommunications.

■ Canadian man gets $85,000 phone bill for using phone as a modem ■ A new feature in Ask.com will allows users to erase porn searches

■ Iranians make supercomputer from banned AMD parts; is XP capable ■ US School bans mobiles after pupil films principal fighting with a student

Bluff
YOUR WAY THROUGH

Audio Remixing

A remixed song is, simply speaking, an alternative, augmented version of a song: multiple other tracks, music samples, loops, and sound effects are added to the original. Since remixes are so popular these days, you might just seem silly if you don't know how it's done. Here are some terms to help you not seem silly.

Console: Also known as a mixing deck, it is the control panel for making the changes to the audio track.

Synthesizer: An instrument that can be used for generating new sounds from raw audio material such as waveforms—and also for generating original sounds.

Filter: A circuit that carries hundreds of knobs, used for eliminating certain frequencies and letting other frequencies pass through.

Scratching: The technique of moving a vinyl record to and fro by hand on the mixer with the phono cartridge for creating different rhythmic sound patterns.

EQ (Equalisation): The process of altering, cutting, or boosting the levels of individual frequency bands within an audio signal using a number of filters. This control can be simple or highly complex, depending on software or hardware.

Fader (Slider): This acts as a control device used for the precise manipulation of audio levels—something like an advanced volume control.

BPM: The unit that defines the pace of music—beats per minute.

Usage: Last night, I got a chance to remix some songs at a local discotheque on the DJ's *console* hooked up to their *synthesiser*. Whenever I increased the *BPM*—or used the *fader* to change the track, the audience would roar like crazy! I need to improve my *scratching* technique and learn *EQ* by working on *filter* adjustments.

Wild Wild Web

So Call Us Warped

There's this sad site at **www.avazo.com**. From the Welcome Page: "Welcome to the online web magazine, modern digital media newspaper, blog—**www.avazo.com**. This is a great portal for articles publications and discussions, demonstration all kind of images legal, acceptable and pleasant for the whole family. You could publish any information about you in the modern world, how you live and what you like! We accept and will publish your personal opinion and you could see what other people think about it.

"What you'll find here... Everything I want to include, as an editor and owner of this Internet digital magazine."

We're calling it "sad" because it's so *genuine*, so *innocent*, so depressingly naive. And it's so sad, it's funny. Call us warped.

The editor and owner of that Internet digital magazine is Russian. This, therefore, seems to be a site for Russians in America to feel sort of American and democratic, to feel free and brave. A sample from the "Last Additions" (sic): "Buying a home, although is a good investment and it can put a tremendous strain on your finances. Actually the monetary cost of buying a house or a piece of property is so large that most people would not be able to pay for it straight from their pockets. This is where a mortgage comes into play." Russians in America, unite! You have nothing to lose but your debt! Learn from fellow Russians about buying property in America, owning your own money, even that capitalist banks will give you a loan!

Don't miss "Google: Good or Evil?" in the Articles section.

You need to have a genuinely heartless sense of humour to be able to laugh at the site. Don't forward the joke—people will like you less.

But it's rather more interesting to go over it country-by-country, just so we can poke fun at people by means of crude comments.

We didn't know the Internet had extended to Afghanistan yet, but very apparently, it has. Interesting top search terms include "map" at #1 (they need to know!), "afghanistan" (talk about ego surfing!), "pakistan" (talk about hero-worship), "vida guerra" (oho, they're a**-men!), and BBC (ego-surfing again; they know they're constantly reported about).

In India, "PAN card" and "income tax department" wer getting really popular in November. (Oh well, just money matters.) But there were two more money-related terms on the list: "tata mutual fund" and "financial express". Probably signs of a healthy economy.

"Priyanka Chopra" was at #2, and "Times of India" was at #7, for the UK in November. We aren't too Bollywood-savvy, and neither do we read the newspapers too much, so we have no idea why... but we're guessing there are more Indians in the UK than ever before (but that could have been deduced by means of basic logic anyway, since those that go there don't come back).

FAIR DEAL

Let's Get *Bad* This Christmas

It's amazing what fathers will go through for their prized offspring. It's also amazing how said offspring can go into blithering-idiot-mode with alarming regularity. A combination of the two can lead to one ticked-off parent, as one wayward 15-year old in Canada was soon to learn.

The father—a schoolteacher—had gone through extraordinary lengths to get his son a copy of Guitar Hero III for the Wii—which is apparently the Ultimate Christmas Gift, if the ridiculous demand is anything to go by.

Alas, heartbreak was soon to ensue. As he returned early from work one day, this father caught his son smoking marijuana with his "delinquent friends". He kept his cool in the moment (well, not really), secretly plotting a punishment that befit the crime, and then some. That copy of Guitar Hero III he so painstakingly bought? He sold it on EBay. As a reason for selling, he mentioned his son's indiscretions and told buyers, "If you can convince me that he still deserves the gift, then I will end the auction." Not enough people thought so, apparently, because the auction closed when an Australian buyer put up $ 9100.01 (Rs 3.64 lakh) for the game (we told you it was the Ultimate Gift).

The father—whose nickname on EBay is k_lid—still loves his son though, and plans on getting him another game for his Wii—"something like Barbie Island Princess", he contemplates. Punish kid, make a pile, punish kid again. You can't make up happier Christmas stories.

FROM DINGO TO LIMBU

What *Is* In A Name, Really?

You probably haven't heard of these recently-up Web sites: Squidoo, Kayak, Pownce, Scandoo, Foonance, Kelkoo. Actually, you wouldn't recollect the names even if you'd stumbled upon them.

In this, the Web 2.0 era, a new site is launched every fortnight (they're all in beta, but no matter; they exist). Why do these sites come up with the most out-of-the-world names, which sometimes sound goofy, and are sometimes unpronounceable? What a group of directors used to do behind closed doors earlier is now done... untrained monkeys armed with typewriters. (No, that was speculation; we do a lot of that in this space). Actually, the thanks go to online services like Dot-o-mator.com: no more wasting time. Just couple of clicks and voila... a new domain and Web 2.0 site name!

In the past, sites had names that actually meant something, and those names were associated with a brand name and with services offered. (For example, god.com is a spiritual site.) Some big names might seem like exceptions, though, for example, Yahoo!. But then, after some soul-searching, illumination dawns: Yahoo! Is an expression of joy, ostensibly upon receiving an e-mail. (At the time the name was conceived, people just loved to receive mail.) Google refers to one googol Web pages; Googol means 1 followed by 100 zeroes. Then there are the self-explanatory names: Amazon (which obviously refers to the vastness of the site, just like the Amazon basin); Digg (referring, doubtless, to the digging up of information); eBay (who can possibly not know that electronic commerce began in the Bay area?); etc.

But Yokld, doodlekit, Bykaee, Yamli, Sphinn, Yuku... ? The only way out we can see is to impose the following Three Commandments upon new domain registrars:

- The name of your domain shall roll freely off the tongue and shall not generate in the listener the question "Beg pardon?"
- At least five minutes of thought, with valid brain activity being measured and certified by an EMG, shall have gone into the creation of the name.
- When in public, you shall pin to your breast pocket a badge bearing your name following the name of your site. ■

Of Change And Small Change

Bidding farewell to Deepak Ajwani as Editor—in fact, as a member of this organisation—was a mixed affair. It was sad for most of us; one or two women wept the way some women do when the time comes to say good-bye. The chaiwala, however, was glad, because Deepak never had never given him a tip—we know because he told us.

The outgoing (rather, the out-went) editor had won our minds and hearts by virtue of his genuineness, his big heart, his lack of attitude and ego issues, and his unwillingness to wield the stick of discipline (the above, not in any order—really!). But in particular reference to the last point, we should mention that Nimish and Robert got to play Quake, Ram got to sleep, Samir got to use his PSP, Bhaskar got to do his Wikipedia edits, Asfaq got to chat, Vijay got to surf for exotic pictures, etc. etc.—during official, paid, office hours. Still, we should reinforce the idea that this thing about Deepak's not having been strict about discipline was not the biggest reason for our loving him.

Raaabo now manages the things Deepak did, and we'll soon begin to treat him in this space the way we've been treating Deepak. For example, fun shall often be poked at him, and gentle ridicule shall sometimes be directed his way.

We collectively gifted Deepak a good phone, because it's better to give than to receive (and when you know you won't receive if you ask, it's even better to quietly give).

We do know that the chaiwala has no complaints with Raaabo, though—he tips enough for all of us!

DIGIT DIARY

Blog WATCH

Serious issues this month. What's the connection between social networking and large portals? Then, the OLPC project still runs strong in blogging circles... and then, what's *gotten* into the head of the Chinese government?

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http://www.readwriteweb.com/archives/online_accounting_google_apps.php

...So what's next for Google Apps? What might be the next killer app? We think it will be an accounting system and in this article we will outline why. There are strong benefits to an online accounting service in Google Apps—both to users and to the targeted advertising-driven business of Google...every site. What does this have to do with the portals?

...Google could bring significant expertise to online accounting, thanks to their ability to deliver simple, effective online applications with high-performance and reliable infrastructure.

Steve Rubel
http://tinyurl.com/24n7va
http://www.micropersuasion.com/2007/12/wikipedia-and-w.html

Google announced last night they are starting a project called knol that will allow anyone to create wiki-like pages on topics. In particular, Google is encouraging people who know a particular subject to write an "authoritative" article about it. The search engine will not vet any of the content, however, they will prioritize the most credible entries and rank them first in search results. It remains unclear how Google is measuring credibility—a scary thought.

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Mark 'Rizzn' Hopkins
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No, the impetus for the criticism lately from all sides isn't something we did, it's something CNN did. Those that remember the controversy I caused a few weeks ago even intimating that New Media could be getting a black eye from the Republican YouTube-CNN debates are likely groaning right now, because what I predicted is starting to come to pass...

■ In a bottle-cap promo, Pepsi will offer 1 billion DRM-free songs on Amazon ■ Blu-ray site hacked; redirects to the official HD-DVD site ■ Windows Explorer identified as virus by Kaspersky, quarantined ■ Facebook accuses British MP of impersonating self, disables account

Of Change And Small Change

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Now, a source says Robert hasn't yet given the chaiwala a tip either. Surprising: his name doesn't end in "-ni"...

DIGIT DIARY

You've won a lottery... Get a free iPhone... Resize your manhood... The bigger the better... You can easily recognise these as the subject lines of the delete-worthy mails in your Inbox. However, intriguing subject lines do entice a select few idiots into opening the mails—in case you didn't know.

Creating good spam filters to tackle such mails has been the agenda of many security companies, working with Web-based mail service providers. McAfee recently decided to think outside the box; the company said they would be hiring volunteers from the UK and the US for a thirty-day spam analysis. The research has been dubbed "Super Spam Me." The distasteful thing the volunteers would have to do is to reply to the spam messages; this act will supposedly help the researchers figure how that will affect the flow of spam.

The project, if one may call it that, will only include a few paid volunteers.

Here's the first bit of hilarity: applicants would have to send an e-mail to the company that oversees McAfee's PR work. Seeing as the job (namely, to reply to spam messages) is easy to perform, there will doubtless be thousands of volunteers (people tend to like money). The poor slobs will now receive more McAfee PR mails than other spam, we can bet.

In case you haven't figured it already, the second point here is that everyone knows what's going to happen. When you respond to a spam mail, you're going to get more spam—for those not in the know, this is because the spammer gets to know that yours is a valid, active e-mail address. So what's with the bit about analysing how the flow of spam would be affected? If you can guess, if we can guess, McAfee can guess, too—more spam, period.

The deal, evidently, is this: get paid to get more spam—from your spammers as well as from us. Quite normal for a regular Web company to be offering something like this—but not quite normal for a company that should be spending its time making spam filters.

PRIVACY WOES

No more pokey-pokey!

Blog WATCH

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Check your TQ

What Would Gates Do?

1 **US Presidential Candidates are doing this for votes:**
(a) Wooing younger voters via SMS
(b) Wooing older voters using greeting cards
(c) Using ad slots on free Net radio stations
(d) Podcasting gay-and-lesbian-friendly speeches

2 **Which of these ridiculous-sounding theories was floated on the Internet in December?**
(a) Most Xbox 360 units are assembled by lepers
(b) The Wii emits a cockroach-attracting hum
(c) The PS3 emits a lizard-repelling hum
(d) For each PSP sold, one Chinese kid gets richer by $1.50

3 **What turned 60 on 17 December of last year?**
(a) The typewriter
(b) The transistor
(c) The vacuum tube
(d) GDDR3 RAM

4 **What character can't be part of a filename on a Mac?**
(a) The hash (#)
(b) The backslash (\)
(c) The caret (^)
(d) The colon (:)

5 **What organisation devised the printed circuit board?**
(a) The US National Bureau of Standards
(b) Texas Instruments
(c) NVIDIA
(d) Xerox

6 **Which of the following is a computer language?**
(a) Stonehenge (b) Taj
(c) Eiffel (d) The Sydney Opera House

7 **Which of the following is true about the Netscape browser before 2000?**
(a) It would crash when "www.ww.w" was typed into the address bar
(b) It had no Reload button
(c) The page would reload upon resizing of the window
(d) It would crash when there were more than 32 images on a page

8 **Belgium, February 1998, Bill Gates was hit in the face with a pie. What did he do?**
(a) Sued the pie-thrower
(b) Swore at the pie-thrower: "You Steve!"
(c) Quietly wiped his face
(d) Said it wasn't very tasty

9 **In UNIX systems, the OS views every entity (including a disk!) as...**
(a) A directory (b) A file
(c) A logical address (d) A virtual location

Did You Know?

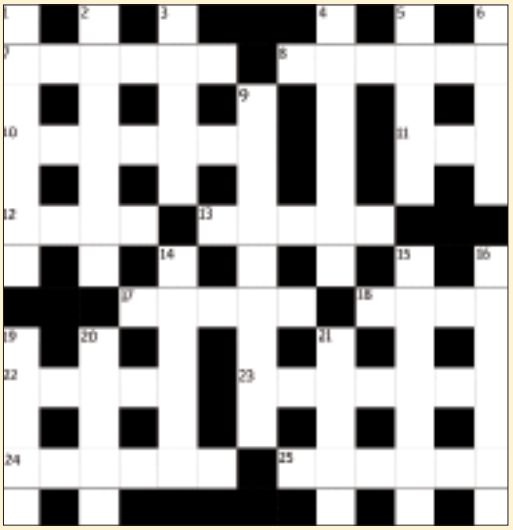
Tim Berners-Lee, who invented the WWW (if we must remind you), once said: "It staggers me that people have actually put up with HTML. It was never supposed to be something that you would see, but something produced by an editor program."

Answers

1. A	6. C
2. B	7. C
3. B	8. D
4. D	9. B
5. A	

Got an interesting question? Send it in with the answer to TQ@thinkdigit.com Mark "TQ" in the subject area.

Crossword



ACROSS
7. Graphics (6)
8. A machine that captures data for the computer (6)
10. 'C' in CPU (7)
11. Business Process Outsourcing (abbr.) (3)
12. Short for Infosys (4)
13. Spreadsheet programme from Microsoft (5)
17. Personal Web sites in the form of online journals (5)
18. Network configuration in which all computers are connected by direct cables to a main hub (4)
22. Makers of the Macintosh line of computers (5)
23. 'A' in AOL (7)
24. In GUI-small windows containing messages and a button to click to dismiss the windows (6)
25. One unit (6)

DOWN
1. -----breaker- device that interrupts an electrical path (7)
2. Zoom tool function-to increase in size (7)
3. SI unit of inductance symbolized H (5)
4. Type of printer from Hewlett Packard (4,3)
5. Graphical software solutions for network publishing (5)
6. Server-----have codes in the 500 range (5)
9. Trademark for a tough transparent acrylic plastic that can be substituted for glass (9)
14. Computer that can request information from a server (6)
15. Contiguos set of alphanumeric characters that do not contain numbers for calculations in programming (7)
16. Advanced Research Projects Agency Network(abbr) (4,3)
19. Radio Detection and Ranging (abbr) (5)
20. -----case or capital letters (5)
21. -----player- software application that controls audio and video of a computer (5)

Crossword by **Nitta Jaggi**

Due to an error on our mail server, we lost all your entries for November's crossword. Our sincerest apologies

Win!

Send in your entries to **TQ@thinkdigit.com** on or by **20th of this month.** One lucky participant will win **Amazon.com Mashups**
By Francis Shanahan
Published by WILEY-INDIA

November's Solution

Inbox

Write to the Editor

E-mail: editor@thinkdigit.com

Snail Mail: The Editor, Digit, KPT House, Plot 41/13, Sector 30, Vashi, Navi Mumbai 400 703

Digit will publish the best letters on these pages. Letters may be edited for clarity. **Please include your complete address in all communication.**

For subscription queries send an e-mail to **help@jasubhai.com**

December 2007

Ads Are Good

I started to read Digit 2 years ago. I appreciate the efforts which Digit puts in while providing an outstanding magazine to us. I have no complaint regarding the Ads in Digit because it is necessary for you and as well as readers since these Ads provide information about new products and technologies in the market, and keep the price of our Digit down. You should consider adding some more reading materials (Articles, Tutorials) in the Disc. It may be a good idea if you add a Letter Section in the Disc as well, so that more and more Letters from the readers can be included.

Deepak Bhalla
Aligarg (UP)

At last, someone who understands the value of advertising. Yes it's true. It's the advertising that keeps the cost of all print media down. We like your suggestions as well, and are planning on enhancing *Digit's* multimedia content over the next few months. All we can say is keep reading, you should be pleasantly surprised shortly.

Team Digit

Someone Stole Our Tagline

I'm a subscriber, (and a loyal one at that!). Incidentally, you should know that a new shop opened in my town, and I am shocked to see that they are using your slogan. The shop is called Saravanaa's Computer Sales & Service, and its slogan is Your Technology Navigator. You may want to look into this.

I have been a reader for the past five years, but this is my first letter to you. I want to buy SKOAR! As well, but it's not available in my town. Please tell me how I can get my monthly dose of SKOAR! as well.

Digit's November issue rocked, and my friend bought himself a PC as per your advice, and is very happy. Only one complaint, I haven't received my copy of the December issue yet, and it's the fifteenth already. In fact, I always get special issues late. Please look into this matter.

S. Prasanna
Karaikal

Imitation is the finest form of flattery, and we're flattered that the small business in your town is inspired by us, and uses our slogan. Although we're usually quite strict about such copyright issues, I have a feeling that our legal department will let this one slide. We're glad your friend benefitted from our reviews, and you should urge him to get his own subscription!

The December issue was delayed because of some complications with our DVD replicator, and thus was late going out to both stands and subscribers. We're trying to make sure such issues never crop up again. Still, we understand your point completely, and will put all our efforts to ensure that all our readers start getting their magazines sooner—especially our content-packed special issues.

Team Digit

Wonderfu(e)l

I am a regular reader of your esteemed magazine. This edition is wonderfu(e)l (Dec 2007), because of several reasons: The biggest being the e-archives. I have asked our college librarian to put them on the library LAN under the head e-journal, so that all students can access any pages, anytime. Unfortunately, in the Fast Track PDFs, you have forgotten to include the Fast Track To Google (Dec 2006). I have searched every nook and cranny of all the DVDs and can tell you that it wasn't even accidentally moved to another folder—it's just not there. Wishing you all at Digit a very Merry Christmas and a Happy New Year in 2008.

V K Adarsh

Whoops! You're absolutely right. As soon as we got this mail we searched every "nook and cranny" of our DVDs as well as our backup servers and just cannot find it. We're guessing someone yawned a little too hard at 4 am while making DVDs and accidentally pressed [Delete]. Yes, we mean you, Nimish! We're going to have to dig into our archives and recreate the whole PDF from scratch. We'll provide it in our February 2008 DVD.

Team Digit

No Competition

I am a regular reader of Digit for the past one year. I must say that yours is the best magazine because I had also subscribed to two other magazines, but quickly discontinued because Digit satisfies all my needs. I would like to publish your articles on my blog. I assure you that I'll give the necessary credits. Hope you'll help students like me to help my blog visitors learn something useful. Also, if you want I will put a link to your subscription page in my blog. Please give me the requisite permission to do so.

Ajay Shivaa
Tamil Nadu

All of our articles are already published online at **www.thinkdigit.com**. Our policy for requests such as yours is to allow linkage to the articles, and although you can post excerpts from those articles, you cannot copy-paste the entire article. We realise that your intentions are noble—the fact that you asked for permission is testimony of that. However, our legal department makes the laws on such things.

As a personal note to our readers: if you want to increase traffic to your Web site, try adding unique content, instead of relying on content that others generate. Try writing articles of your own, and reserve the usage of content from *Digit*, or other sources, as excerpts or expert opinions. If you do so, and start getting a lot of hits, make sure you send us your CV.

Team Digit

Bah Humbug

I wasn't impressed by your December 07 issue. Personally, I feel that dividing the magazine into 5 parts was not a great idea. The lack of a Fast Track, which I consider to be one of the best parts of your magazine, was even more disappointing. On the other hand, the magazine contents and the CD/DVD contents were fine. Please try and give full system requirements for your game reviews.

OVERALL A GREAT MAGAZINE!

Ahmad Nadeem

Wow! We love it when you guys are candid with us. To be quite honest, we received a dozen or so mails criticising us for the 5 magazine idea. However, we've also received a lot of positive feedback—see the letters that follow—and we know we can't please everyone. If it's any consolation, this was a one off idea, and *Digit* is safely back to its original form. We're glad you liked the 5 DVDs, and the content inside the 5 magazines, even if they were painful to handle for you.

Team Digit

Seeing Double

First of all I would like to wish Team Digit and all Digit readers a Happy New Year and Merry Christmas. This is the first time I'm writing to you, and I've been a reader for the last 4 months. Digit is exactly what I was looking for, and I save my pocket money every month to buy it because it's now an important part of my life.

The December Mega Issue is superb, and I have read it again and again. I would like to compliment you on this five pack issue, especially the editorial team. The "Tips and Tricks" in this issue are wonderful. The "How Tos" even more so.

I liked the Connect issue the best, as it is related to the Web and I am currently learning Web programming. I have a complaint as well, I got two Connect DVDs and no Computing DVD. Please send it to me because I need Ubuntu! It's your articles that have inspired me to stop pirating software and use Open Source alternatives.

I also loved the PDFs of all past Digit and Fast Track issues. I request you to publish a Fast Track to Web programming, or programming in general.

Mohammad Khalid
Chandigarh

We're so tempted to tell you that we sent you two Connect DVDs on purpose, because we knew you'd love that section the most. Don't worry, that's not our official stand, and we've already sent you a Computing DVD. We're also glad that you've gone the Open Source way instead of pirating software like most others do. Every such mail makes us proud to know that we're doing everything we can to rid India of the "pirate nation" tag that it's earned. It's a slow process, but we're glad that people like you have decided to lead by example.

Team Digit

On A Personal Note

I know "the editor" status is a respectable one, so forgive me for considering you my "editor brother". I was born and brought up, and studied in Bangalore, and am currently studying—second year, BE, Electronics and communications. I came across Digit in our college library and from then on, I'm a regular reader. I've been planning to write to you, but something always came up.

Since the story telling is probably boring you, I'll get right to the point.

Since childhood, technology has fascinated me. I want to be a "computer geek", and achieve something in this field. But I don't know what to do. Some people tell me to learn programming, others tell me to get certifications (Cisco, MCSE, MCP, RHCE, etc.), and some even tell me to join NIIT, IIHT and do animation. I'm totally confused!

All I know is that I want to be able to achieve something great in technology, and lead from the front. I desperately need your help to sort out my confusion about this vast field of IT.

Vivek
Bengaluru

Our deepest sympathies, Vivek. We know how vast the technology industry is, and it really can be quite confusing. However, we must point out that your confusion is largely your own doing. You're going around asking too many people for their opinions, and that's never a good thing, especially when it involves something as vital as your career. We're not going to add to your confusion by suggesting a career option for you without knowing you. We will, however, tell you that you should read through our Tech Careers section on a regular basis, try and identify a field of technology that really interests you, and then read more about it online. You might even want to consult a career counsellor to see if you fit into the field that interests you. What you need to remember is that the field you choose needs to be very intriguing and interesting to you, you should have an aptitude for the kind of work that is involved, and most importantly, look for good growth options. We have no doubts that once you do this, you will succeed, and probably be featured in a *Digit* article. We love your spirit though, so make sure you never lose the passion for technology that you possess.

Team Digit

ERRATA—December 2007 Personal Tech

Page 32, ASUS P525 review:
For sales inquiries contact, IDLDPL Pvt Ltd, 011-46096400, **contactus@idldpl.com**

Page 35, YES YMP45 review:
The price is wrongly printed as Rs 70,000—it's really Rs 6,499; Contact: IDLDPL Pvt Ltd, 011-46096400, **contactus@idldpl.com**

DIGIT 2007 GTX: EXTREME FATAL1TY EDITION

LETTER OF THE MONTH

Now that's a DIGIT! Packed to the brim with loads of Tech stuff any geek would want. I really loved your idea to split Digit into 5 sections with relevant individual content. I appreciate all the work you guys put in this month. The 2020 Love Story was very good. I really liked the Agent 001 section, huge reviews and articles covering every detail possible. Mission accomplished 001!

The Gaming section was the best. I really loved the previews of upcoming games, and I'm happy to learn that the PS3 will finally brush off all that dust, with a huge collection of superb upcoming titles.

The five DVDs was the best ever-huge collection of all that one would ever need. The articles on how mobiles work, stop motion animation, how to build an HTPC, the weirdest gadgets, overclocking (obviously) & the input devices shootout were excellent.

Now for the complaints:

- I really missed the Fast Track
- The price of a humble YES YMP45 was priced at a hazardous 70,000 instead of 7,000.
- A shootout of the latest DVD-writers etc., would have really helped.
- Those without DVD drives would have suffered.
- There was no poll!
- Way too many ads, eating up valuable space that could have been filled with even more information. (I really liked the Intel ad on the DVD though)

Please continue your fight against piracy, you guys are really contributing a lot to bringing it down. Agent 001 has really completed his mission! I also wish to congratulate the artists who have done a great job throughout the magazine. The covers especially looked glorious. Overall, this was the best Christmas and New Year gift for any Digit reader.

Praveen Prakash
Kochi, Kerala

Whoa! All we can say is thanks for appreciating the work we put into the December issue. It wasn't easy, especially with the shifting of office bang in the middle of the preparations for the issue. The graphics designers and artists have pinned your letter on their walls, and thank you from the bottom of their hearts for noticing the hard work they put into every issue.

Team Digit

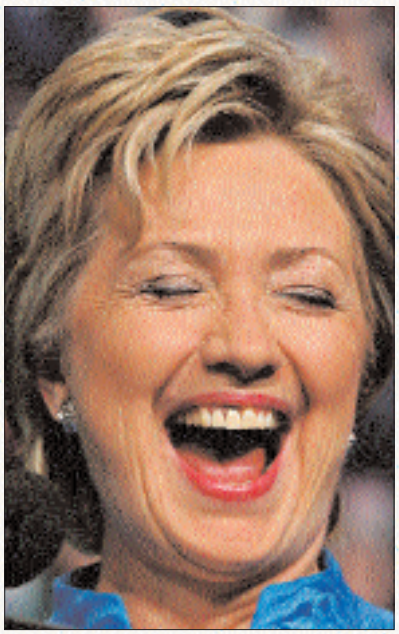
Tabloid TECH

People And Events That Grabbed The Headlines—For Better Or For Worse

Hillary: Over The Hill

Politicians are pretty much the same the world over. They take minor issues, blow them out of proportion, conjure up doomsday scenarios, then promise voters that deliverance lies in electing him or her to office. They also have a peculiar knack for missing the forest for the trees (read: focusing on trivial issues while serious ones go unattended).

By these standards, Hillary Rodham Clinton is now a full-blown politician. While America is in the midst of a bloody war in Iraq, Clinton had gotten all hot under the collar over virtual sex. This indignation was apparently prompted by an Easter Egg in Grand Theft Auto: San Andreas, where a scene shows characters having sex. To access that part of the game, players had to download and install a patch, which was far more complex than simply Googling for more realistic porn. This issue occupied quite some time of the august lawmakers, and also led to the introduction of a failed Senate bill. In her latest campaign declaration, Clinton announced that if elected President, she would take stringent steps to monitor virtual sex peddled by the gaming industry. Which would mean countless press conferences, debates—the works. Now if that isn't a nanny state, then what is?



Clinton is in the news for another wrong reason: Two anonymous, recently-launched Web sites featured attacks on her main competitor Barack Obama. Serious allegations were raised, and there was quite a bit of speculation as to who was behind these sites. Then someone did some snooping around—and found that the official Web site of Hillary Clinton and these Web sites were hosted on the same domain. Sniping at political rivals is part of the game, but getting caught due to a minor oversight is pretty embarrassing. Surely with all those campaign dollars, they could have afforded a different IP address...

Getting The Rap

If you have been reading our past few issues, you'd have noticed a sprinkling of stories about music companies suing individuals for illegaly copying music. The premise of these cases was that file sharing is harmful to the interests of artists who have toiled so hard for success. By not buying music, fans are cheating the musicians of their livelihood, and the record companies are being the good guys, fighting dirty legal battles while the musicians can keep the creative juices flowing, bless them.

All well and good, but has anybody bothered to ask the artists themselves what they think? We were wondering when some hack would try to get it straight from the horse's mouth, but rapper 50 Cent has himself stepped forward to set the record straight. For those not in the loop, Curtis James Jackson III, who goes by the undeniably silly name of 50 Cent, is one of the most successful rappers today. The guy is also a canny businessman and markets his own music. According to him, all the hullabaloo over file sharing is misplaced, and artists are not really feeling the pinch when their music is illegally copied. He displays a rare degree of pragmatism when he says that musicians have to keep up with the times, especially musicians like himself, whose fans were younger and more likely to adopt newer technologies. 50 Cent sees current DRM business models outdated, and feels that music companies are not doing enough to exploit marketing opportunities in merchandising and the crowded concerts.

In other words, his message to the music label suits was: "get off your lazy behinds and think smart." We may not like his music, but we sure appreciate the message.

Phones Celebs Use

Deep down in our hearts, we always want to be like our favourite celebrity. No, don't deny it: those sunglasses, clothes, and cars—how we want to look like them! Alas, for us ordinary fans, the hoi polloi, these things don't come cheap. Their shoes cost more than our monthly paycheck, and we wouldn't be able to afford their cars even if we worked our arses off for life. So what's a ordinary guy / gal to do? Use the cell phones the celebrities use, of course.

The above solution might be a tad difficult if you are a fan of a celebrity who has a particular attraction for gold-plated, diamond-encrusted mobiles. However, last we checked, most of the usual suspects use common Motorolas and Nokias and such. Maria Sharapova has often been spotted with a pink Motorazr. In Hollywood, phone companies give away free phones as publicity; business phones from Blackberry are the most popular among celebs. Among its long list of users are Tom Cruise, Angelina Jolie, Brad Pitt, Katie Holmes, Paris Hilton, Lindsay Lohan, and Cristina Augilera. The Blackberry also seems to be a favourite assault weapon: Naomi Campbell has been prosecuted after beating housekeepers and assistants with it. The iPhone, however, is not a hot favourite, which is surprising because of its now-certified hotness. This is partly due to Apple's not cosying up to the Page 3 type. Another reason would be its poorer e-mail capabilities compared to business phones.

Closer home, our desi celebrities might be endorsing handsets left, right, and centre, but we can bet they're not all using the phones they profess to love. Now while we won't go about naming brands, we suggest you do a little harder staring when next you see a photo of your favourite celebrity on the phone. Then e-mail us so we can share the data with the rest of our readers.